VOLUME 3 PART 1

NORTH AMERICAN FLORA

HYPOCREALES, FIMETARIALES

NECTRIACEAE, HYPOCREACEAE

FRED JAY SEAVER

CHAETOMIACEAE

HELEN LETITIA PALLISER

FIMETARIACEAE

DAVID GRIFFITHS AND FRED JAY SEAVER

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ANNOUNCEMENT

The NORTH AMERICAN FLORA is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American.

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

Volume 1. Mycetozoa, Schizophyta, Diatomaceae.

Volumes 2 to 10. Fungi.

Volumes 11 to 13. Algae.

Volumes 14 and 15. Bryophyta.

Volume 16. Pteridophyta and Gymnospermae.

Volumes 17 to 19. Monocotyledones.

Volumes 20 to 32. Dicotyledones.

The preparation of the work has been referred by the Scientific Directors of the Garden to a committee consisting of Dr. N. L. Britton, Dr. W. A. Murrill, and Dr. J. H. Barnhart.

Professor George F. Atkinson, of Cornell University; Professor John M. Coulter, of the University of Chicago; Mr. Frederick V. Coville, of the United States Department of Agriculture; Professor Edward L. Greene, of the United States National Museum; Professor Byron D. Halsted, of Rutgers College; and Professor William Trelease, of the Missouri Botanical Garden, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

The subscription price is fixed at $1.50 for each part; it is expected that four or five parts will be required for each volume. A limited number of separate parts will be sold at $2.00 each. Address:

THE NEW YORK BOTANICAL GARDEN
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Order **HYPOCREALES**

By Fred Jay Seaver

Perithecia globose, ovoid, conic, cylindric, fusoid, or flask-shaped, free on the substratum (occasionally subepidermal) or united by a common matrix, varying from a cottony subiculum to a distinct fleshy stroma, bright-colored, white, yellow, red, brown, violet, but never entirely black except in extreme age, opening by an ostiolum; perithecial wall membranaceous or submembranaceous, never carbonaceous. Stromata, when present, bright-colored and soft, fleshy or cottony, and varying in size from 1–2 mm. to several cm. in diameter, patellate, effuse, subglobose, or stalked, with the perithecia entirely superficial or partially to entirely immersed. Asci cylindric, clavate, or subovoid, mostly 4–8-spored, but often becoming 16-spored by the separation of each original spore into 2 globose or subglobose cells. Spores simple or compound, hyaline or colored, globose to filiform. Paraphyses usually present, but often indistinct.

Conidiophores and conidia very variable.

Stromata wanting, or, when present, with the perithecia entirely superficial, usually in cespitose clusters.	Fam. 1. Nectriaceae.
Stromata or stromatic base always present and forming a conspicuous matrix in which the perithecia are partially to entirely immersed, rarely subsuperficial, especially in aged specimens.	Fam. 2. Hypocreaceae.

Family 1. NECTRIACEAE

By Fred Jay Seaver

Perithecia entirely free on the substratum (occasionally subepidermal), or seated on a fleshy or tubercular stroma, but when the latter is present, perithecia always superficial, usually in cespitose clusters. Stromata often obscured at maturity by the perithecia and occasionally becoming obsolete in aged specimens, but in such cases their presence is indicated by the densely cespitose clusters of perithecia.

Stromata and stromatic base entirely wanting. — Tribe 1. Nectrieae.
Stromata or stromatic base present; perithecia superficial. — Tribe 2. Creonectrieae.

Tribe 1. Nectrieae. Perithecia free (without stroma) and occurring singly but often gregarious and occasionally more or less crowded on the surface of the substratum, or formed beneath the epidermis and becoming erumpent-superficial, smooth, verrucose, or clothed with deciduous mycelial threads or well-developed hairs; asci cylindric to clavate or subovoid, 4–8-spored; spores simple or compound, globose to filiform, hyaline or colored; conidial phase never forming a stroma.

Spores hyaline.
  Perithecia subepidermal, becoming erumpent-superficial.
    Spores simple. — 1. Hyponectria.
    Spores septate. — 2. Nectriella.
  Perithecia superficial on the substratum.
    Spores simple.
      Spores appendiculate; perithecia beaked. — 3. Eleuthromyces.
      Spores without appendages; perithecia not beaked. — 4. Pseudonectria.
    Spores compound, 1–many-septate.
      Spores 1-septate. — 5. Nectria.
      Spores more than 1-septate.
        Perithecia light-colored: yellow or red.
          Spores ellipsoid to fusiform. — 6. Calonectria.
          Spores filiform or subfiliform. — 7. Ophionectria.
        Perithecia dark-colored: blue. — 17. Gibberella.
Spores dark-colored (brown or blackish).
  Spores simple.
    Spores subglobose, rough; perithecia subglobose. — 14. Neocosmospora.
    Spores ellipsoid, smooth; perithecia flask-shaped. — 8. Melanospora.
  Spores compound, 1-septate. — 9. Letendraea.

Tribe 2. Creonectrieae. Conidial phase profuse, giving rise to stromata producing at first conidiophores and conidia, later perithecia; stromata fleshy, depressed, tubercular, or stalked; conidia variable; perithecia seated on, or surrounding, the stromata, usually in dense, cespitose clusters or occasionally scattered, but always entirely superficial; perithecia, asci, and spores as in *Nectrieae*.

Stromata upright, stalked, surrounded at the base by the cespitose perithecia.
  Spores 1-septate. — 10. Sphaerostilbe.
  Spores muriform. — 11. Megalonectria.
Stromata depressed or tubercular, often concealed at maturity by the perithecia.
  Spores simple.
    Spores hyaline. — 12. Allantonectria.
    Spores brown.
      Spores ellipsoid, smooth. — 13. Sphaerodermatella.
      Spores subglobose, rough. — 14. Neocosmospora.
  Spores compound.
    Spores 1-septate.
      Spores hyaline. — 15. Creonectria.
      Spores brown. — 16. Macbridella.
    Spores more than 1-septate.
      Perithecia dark-blue (black to naked eye). — 17. Gibberella.
      Perithecia bright-colored (red, yellow, etc.)
        Perithecia cespitose on a depressed stroma. — 18. Scoleconectria.

Perithecia echinulately arranged on a subglobose stroma. 19. ECHINODOTHIS.
Spores muriform.
Spores hyaline. 20. THYRONECTRIA.
Spores brown. 21. THYRONECTROIDEA.

1. HYPONECTRIA Sacc. Michelia 1: 250. 1878.

Perithecia globose or subglobose, subepidermal, often becoming erumpent; asci 8-spored; spores ellipsoid or subellipsoid, hyaline, simple.

Type species, *Sphaeria Buxi* DC.

Spores 5–6 × 1.5–2 μ; on stems of *Opuntia* sp. 1. *H. Cacti.*
Spores 10 × 2–2.5 μ; on herbaceous stems. 2. *H. dakotensis.*

1. **Hyponectria Cacti** (Ellis & Ev.) Seaver, Mycologia 1: 20. 1909.

Nectriella Cacti Ellis & Ev. Jour. Myc. 8: 66. 1902.

Perithecia minute, scattered, subepidermal, globose or subglobose, expanded above the epidermis into a disk-like ostiolum; perithecia red, with the ostiolum lighter, whitish (in dried specimens), about 200 μ in diameter; asci cylindric or clavate, 40–50 × 3–4 μ; spores 2-seriate, simple, hyaline, straight or curved, 5–6 × 1.5–2 μ.

On stems of *Opuntia* sp.
TYPE LOCALITY: Tuskegee, Alabama.
DISTRIBUTION: Known only from the type locality.

2. **Hyponectria dakotensis** Seaver, Mycologia 1: 20. 1909.

Perithecia scattered or occasionally 2 or more in close contact, subepidermal, becoming more or less erumpent, long covered by the thin, whitish epidermis of the host, scattered over whitish patches on the substratum but with no apparent superficial mycelial growth; ostiolum forming a disk-like expansion above the surface of the epidermis with a distinct perforation in the center, slightly hairy, especially near the margin of the disk, where the hairs appear as a delicate fringe; perithecia 200 μ in diameter; asci clavate, 30–45 × 5 μ; spores mostly 2-seriate above, often 1-seriate below, fusoid, with usually 2 large oil-drops, and 1 or 2 smaller ones toward either end, 10 × 2–2.5 μ; paraphyses present, delicate.

On herbaceous stems (? *Ambrosia*).
TYPE LOCALITY: Fargo, North Dakota.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia 1: *pl. 2, f. 1–4.*

2. NECTRIELLA Nitschke; Fuckel, Symb. Myc. 175. 1869.

Charonectria Sacc. Michelia 2: 72. 1880.

Perithecia globose or subglobose, entirely subepidermal or erumpent-superficial; asci 8-spored; spores hyaline, 1-septate.

Type species, *Nectriella Fuckelii* Nitschke.

Perithecia large, 400 μ in diameter, pale-red. 1. *N. Pedicularis.*
Perithecia small, 175–200 μ in diameter, scarlet. 2. *N. Peponum.*

1. **Nectriella Pedicularis** (Tracy & Earle) Seaver, Mycologia 1: 46. 1909.

Charonectria Pedicularis Tracy & Earle, in Greene, Pl. Baker. 1: 26. 1901.

Perithecia scattered or gregarious, prominent but long covered by the thin epidermis, orbicular, at length subdepressed, bright coral-red, smooth, soft, perforated by an obscure ostiolum, 400 μ in diameter; asci numerous, cylindric, with a stem-like base, 100 × 8 μ; spores obliquely 1-seriate, hyaline, minutely granular within, 1-septate, subellipsoid, with acutish ends, 17 × 4 μ.

On dead stems of *Pedicularis crenulata* Benth.
TYPE LOCALITY: Bear Creek Divide, Colorado.
DISTRIBUTION: Colorado.

2. **Nectriella Peponum** (Berk. & Curt.) Seaver, Mycologia **1**: 46. 1909.

Nectria perpusilla Berk. & Curt.; Rav. Fungi Car. **4**: *51*; hyponym. 1855. Not *N. perpusilla* Mont. 1856.
Nectria Peponum Berk. & Curt.; Berk. Grevillea **4**: 16. 1875.

Perithecia scattered or gregarious, at first covered by the thin epidermis, becoming subsuperficial, but nestling in minute cavities in the substratum, ovoid, with a prominent, obtuse ostiolum, 175 × 200 μ, bright-red, nearly scarlet, the component cells of the perithecial wall distinct, 5 μ in diameter; asci clavate, 35–40 × 5–6 μ; spores 1-septate, fusoid, hyaline, 10 × 4 μ.

On dead gourds.
TYPE LOCALITY: South Carolina.
DISTRIBUTION: North Carolina and South Carolina.
EXSICCATI: Rav. Fungi Am. *338*; Rav. Fungi Car. **4**: *51*.

DOUBTFUL SPECIES

Nectria Galii Plow. & Hark. Bull. Calif. Acad. **1**: 26. 1884.

3. **ELEUTHROMYCES** Fuckel, Symb. Myc. 183. 1869.

Perithecia free on the substratum, globose or subglobose, continued into a long neck, brownish or amber; substance soft; asci cylindric, 4–8-spored; spores simple, fusiform, continued into a more or less bristle-like apiculus at each end.

Type species, *Sphaeria subulata* Tode.

Perithecia large, 500 μ–1 mm. high. 1. *E. subulatus*.
Perithecia small, 150–180 μ high. 2. *E. Geoglossi*.

1. **Eleuthromyces subulatus** (Tode) Fuckel, Symb. Myc. 183. 1869.

? *Clavaria brachiata* Batsch, Elench. Fung. Contin. **1**: 234. 1786.
Sphaeria subulata Tode, Fungi Meckl. **2**: 44. 1791.
? *Isaria brachiata* Schum. Enum. Pl. Saell. **2**: 443. 1803.
Sphaeronema subulatum Fries, Syst. Myc. **2**: 536. 1823.

Perithecia scattered or gregarious, subglobose below, tapering into a long neck, smooth or nearly so, yellowish or amber, 200–300 μ in diameter at the base and 500 μ–1 mm. high; asci cylindric, fusoid, about 50 × 2–3 μ, 8-spored; spores simple, elongate, averaging 4 × 2 μ, tapering into a bristle-like appendage of variable length at each end.

On partially decayed fungi.
TYPE LOCALITY: Europe.
DISTRIBUTION: Ontario; also in Europe.
ILLUSTRATIONS: Batsch, Elench. Fung. *pl. 28, f. 163*; Tode, Fungi Meckl. *pl. 15, f. 117*; E. & P. Nat. Pfl. 1^1: *f. 238, D–E*; Nees, Syst. Pilze Schw. *pl. 43, f. 345, B*; Rab. Krypt. Fl. 1^2: 84. *f. 1–4*.

2. **Eleuthromyces Geoglossi** (Ellis & Ev.) Seaver, Mycologia **1**: 48. 1909.

Hypomyces Geoglossi Ellis & Ev. Jour. Myc. **2**: 73. 1886.
Peckiella Geoglossi Sacc. Syll. Fung. **9**: 944. 1891.

Perithecia superficial, closely gregarious, dirty greenish-yellow when fresh, yellowish to amber when dry, more or less furfuraceous, nearly globose, tapering into a rather long neck, 150 μ in diameter at the base and 180 μ high; asci slender, 50–75 × 4–5 μ, 8-spored; spores mostly 1-seriate, with the ends overlapping, hyaline, simple, tapering into an appendage-like extremity at each end, 10–12 × 3–4 μ.

On *Trichoglossum* sp.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: New York and New Jersey.
ILLUSTRATION: Mycologia **1**: *pl. 4, f. 10, 11*.

4. PSEUDONECTRIA Seaver, Mycologia 1: 48. 1909.

Nectriella Sacc. Michelia 1: 51. 1877. Not *Nectriella* Nitschke, 1869.

Perithecia free on the substratum, globose to ovoid, bright-colored (yellow, red, etc.), smooth or minutely rough, soft, membranaceous; asci cylindric, 8-spored; spores ellipsoid or subellipsoid, simple, hyaline.

Type species, *Nectria Rousseliana* Mont.

1. Pseudonectria sulphurata (Ellis & Ev.) Seaver, Mycologia 1: 48. 1909.

Nectria sulphurata Ellis & Ev. Proc. Acad. Phila. 1890: 248. 1890.

Perithecia small, about 200 μ in diameter, at first globose, finally collapsing, sulfur-yellow-pruinose, becoming green with age; asci cylindric, 50–60 × 5–6 μ; spores more or less crowded in the ascus, becoming partially 2-seriate, hyaline, allantoid, elongate, with ends obtuse, 7–12 × 2–2.5 μ.

On dead wood of *Populus tremuloides* Michx.
TYPE LOCALITY: Sand Coulee, Montana.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL SPECIES

Nectria mycetophila Peck, Ann. Rep. N. Y. State Mus. 26: 85. 1874. *Nectriella mycetophila* Sacc. Syll. Fung. 2: 449. 1883.

5. NECTRIA Fries, Summa Veg. Scand. 387. 1849.

Hypocrea § *Nectria* Fries, Syst. Orbis Veg. 105. 1825.
Nectria § *Dialonectria* Sacc. Syll. Fung. 2: 490. 1883.
Dialonectria Cooke, Grevillea 12: 77. 1884.
Dasyphthora Clements, Gen. Fungi 45. 1909.

Plants parasitic or saprophytic; perithecia superficial, entirely free, scattered, or occasionally crowded, globose, ovoid, or conic in form, without stroma or common subiculum but individual perithecia often surrounded near the base by a scant mycelial growth; perithecial wall composed of distinct, coarse cells or cell-structure obscure, smooth, pruinose, furfuraceous, clothed with deciduous mycelium or well-developed, flexuous or bristly hairs; ostiola papilliform, obtuse, or obscure; color from whitish to yellow or orange, or from blood-red to reddish-purple, varying much in a given species according to age and conditions; asci cylindric or clavate, mostly 8-spored; spores hyaline, 1-septate, ellipsoid, fusoid, or fusiform, constricted or non-constricted at the septum; paraphyses often present but delicate and indistinct.

Type species, *Sphaeria Peziza* Tode.

Perithecia naked, *i. e.*, not clothed with well-developed hairs (occasionally with a few deciduous mycelial threads).
- Perithecia pale, ranging in color from orange to sulfur-yellow or whitish.
  - Perithecia large, 250–500 μ in diameter.
    - Perithecia smooth or nearly so, collapsing, becoming pezizoid.
      - Saprophytic on wood, sacking, etc. — 1. *N. Peziza.*
      - Parasitic on foliaceous lichens. — 2. *N. diplocarpa.*
    - Perithecia strongly verrucose. — 3. *N. tremelloides.*
  - Perithecia small, 100–150 μ in diameter.
    - Spores large, 15–22 μ long.
      - Perithecia orange, surrounded by zones of mycelium; on soil, pots, etc. — 4. *N. zonata.*
      - Perithecia not surrounded by zones.
        - Spores allantoid; plants parasitic on lichens. — 5. *N. rubefaciens.*
        - Spores fusoid or fusiform, nearly straight.
          - Spores broad-fusoid, 7 μ or more broad.
            - On foliage of dead cedar; spores 15 × 7 μ. — 6. *N. thujana.*
            - On bark; spores 18–22 × 7–10 μ. — 7. *N. dispersa.*
          - Spores narrow-fusoid.
            - Plants entirely collapsing when dry; on *Musa.* — 8. *N. foliicola.*
            - Plants only partially collapsing; on wood.
              - Spores fusoid, 18–22 × 4–5 μ. — 9. *N. Eucalypti.*
              - Spores fusiform, 18–22 × 5–6 μ. — 10. *N. Apocyni.*

Spores small, less than 14 μ long (mostly 7–10 μ).
Perithecia sulfur-yellow-pruinose; on fungi. 11. *N. sulphurea.*
Perithecia not sulfur-yellow-pruinose; on cedar bark. 12. *N. truncata.*
Perithecia deep-red, ranging from scarlet or blood-red to reddish-purple.
Spores marked with longitudinal striations. 13. *N. rhytidospora.*
Spores not marked with striations.
Parasitic on leaves of leguminous plants. 14. *N. Papilionacearum.*
Not parasitic on the leaves of plants.
Saprophytic on dead stems of herbaceous plants. 15. *N. Brassicae.*
Occurring on old wood and sphaeriaceous fungi.
Spores narrow-fusoid; perithecia mostly entire, on wood. 16. *N. sanguinea.*
Spores broad-fusoid; perithecia laterally collapsing, on sphaeriaceous fungi. 17. *N. episphaeria.*
Perithecia clothed with well-developed hairs.
Hairs few, straight, rigid; plants orange or red.
Perithecia large, about 500 μ in diameter, orange; hairs fasciculate. 18. *N. suffulta.*
Perithecia small, 125–150 μ in diameter, red; hairs not fasciculate. 19. *N. consors.*
Hairs numerous, flexuous, giving the plant a woolly appearance.
Perithecia large; hairs sulfur-yellow. 20. *N. flavociliata.*
Perithecia small; hairs hyaline, white to the naked eye.
Spores ellipsoid. 21. *N. lactea.*
Spores allantoid.
Spores 5 × 2 μ; plants on slime-moulds. 22. *N. Rexiana.*
Spores 6–7 × 1.5–2 μ; plants on wood. 23. *N. squamulosa.*

1. **Nectria Peziza** (Tode) Fries, Summa Veg. Scand. 387. 1849.

Sphaeria Peziza Tode, Fungi Meckl. **2**: 46. 1791.
? *Peziza hydrophora* Bull. Hist. Champ. Fr. 243. 1791.
Peziza vulpina Cooke, Hedwigia **14**: 82. 1875.
? *Nectria lasioderma* Ellis, Am. Nat. **17**: 194. 1883.
Nectria rimincola Cooke, Grevillea **11**: 108. 1883.
? *Nectria Umbellulariae* Plow. & Hark. Bull. Calif. Acad. **1**: 26. 1884.
Dialonectria vulpina Cooke, Grevillea **12**: 83. 1884.
Nectria perforata Ellis & Holway; Arth. Bull. Geol. Nat. Hist. Surv. Minn. **3**: 33. 1887.
Nectria vulpina Ellis & Ev. N. Am. Pyrenom. 103. 1892.
Nectria betulina Rehm, Ann. Myc. **3**: 519. 1906.

Perithecia superficial, scattered, gregarious, or occasionally crowded, globose or subglobose, usually collapsing from the top, becoming pezizoid, at first clothed with a scant covering of delicate, white mycelial threads (no true hairs) which disappear with age, leaving the perithecia smooth or, in very old specimens, slightly rough and furfuraceous, 250–500 (mostly 300) μ in diameter, varying in color from deep-orange to pale-yellow, darker in dried specimens but fading in weathered specimens; ostiolum minute in young specimens, just visible, and in older forms depressed and inconspicuous; asci cylindric or clavate, 50–75 × 5–6 μ, 8-spored; spores broadly ellipsoid, obliquely 1-seriate or crowded, becoming partially 2-seriate, thick-walled, 1-septate, not constricted, with a large, conspicuous oil-drop in each cell, 10–14 × 4–6 μ (mostly 10 × 5 μ); paraphyses short, branched, not conspicuous.

On decaying, decorticated wood; more rarely on bark, fungi, and old hemp cloth.
TYPE LOCALITY: Mecklenburg, Germany.
DISTRIBUTION: New York to Ontario, North Dakota, Louisiana (and California?); also in Europe.
ILLUSTRATIONS: Tode, Fungi Meckl. *pl. 15, f. 122;* Bull. Herb. Fr. *pl. 410, f. 2;* Trans. Linn. Soc. **22**: *pl. 57, f. 44;* Berk. Outl. Brit. Fungol. *pl. 24, f. 6;* Grev. Scot. Crypt. Fl. *pl. 186, f. 2;* Mycologia **1**: *pl. 4, f. 3; pl. 5, f. 1.*
EXSICCATI: Rav. Fungi Am. *644;* Ellis, N. Am. Fungi *774;* Wilson & Seaver, Ascom. *16.*

2. **Nectria diplocarpa** Ellis & Ev. Proc. Acad. Phila. **1890**: 244. 1890.

Perithecia gregarious or scattered, occasionally several closely crowded, superficial, subglobose, 250 μ in diameter, nearly smooth, collapsing when dry and becoming pezizoid, flesh-colored; asci clavate, 40–50 × 8–12 μ; spores ellipsoid, 8–12 × 4–5 μ, 1-septate, hyaline. In addition to the ordinary ascospores, there are other large, hyaline, 1-septate, spore-like bodies 30–45 × 18–25 μ present in the perithecia.

On thallus of foliaceous lichens (? *Parmelia*).
TYPE LOCALITY: Farmington, New York.
DISTRIBUTION: New York to Missouri.
ILLUSTRATION: Mycologia **1**: *pl. 5, f. 2.*

3. **Nectria tremelloides** Ellis & Ev. Jour. Myc. **2**: 121. 1886.

Perithecia gregarious, subglobose, coarsely furfuraceous, orange, fading to pale-yellow, about 300 μ in diameter, with a scant, dirty-whitish mycelial growth near the base; asci clavate, 50 × 7 μ; spores 1-seriate or partially 2-seriate above, hyaline, 1-septate, fusoid, very slightly constricted, 9–13 × 3–4 μ.

On bark of dead willow.
TYPE LOCALITY: Louisiana.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia 1: *pl. 5, f. 3.*

4. **Nectria zonata** Seaver, Mycologia **2**: 180. 1910.

Perithecia preceded by a scant mycelial growth, which starts from a given point and radiates equally in all directions, forming concentric rings or zones but never giving rise to a stroma; rings or zones 2–10 cm. in diameter, spreading over the substratum, the white color disappearing in the central portion and soon followed by the widely scattered perithecia, which are inclosed within the outer rings of the advancing mycelium; perithecia pale-orange, ovoid, smooth or nearly so; asci clavate, 8-spored; spores partially 2-seriate, fusoid, slightly unequal-sided, smaller toward the lower end, 1-septate, slightly constricted at the septum, filled with oil-drops, 18–20 × 8–10 μ.

On the outside of pots containing plants in greenhouses; also occurring more rarely on the surface of soil in the presence of algae.
TYPE LOCALITY: New York Botanical Garden.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Mycologia **2**: 179; *pl. 30, f. 1–5.*

5. **Nectria rubefaciens** Ellis & Ev. Jour. Myc. 3: 116. 1887.

Perithecia scattered or gregarious, superficial, subglobose, 80 μ in diameter, smooth or with a few poorly developed hair-like outgrowths, at first pale, becoming orange; asci broad-clavate, 35–40 × 12 μ, 8-spored; spores irregularly crowded, cylindric-allantoid, hyaline or subhyaline, 1-septate, scarcely constricted at the septum, 14–18 × 2–3 μ.

Parasitic on the thallus of some lichen, on dead limbs.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: New Jersey.
ILLUSTRATION: Mycologia 1: *pl. 5, f. 8.*

6. **Nectria thujana** Rehm; Sacc. Michelia **1**: 295. 1878.

Perithecia scattered or gregarious, pale-orange, nearly globose, becoming depressed and more or less pezizoid; asci clavate, 60–80 × 13 μ, 8-spored; spores partially 2-seriate, broad-fusoid, 1-septate, very slightly constricted, 17–18 × 7 μ, hyaline.

On dead foliage of *Cupressus*.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia 1: *pl. 5, f. 9.*
EXSICCATI: Ellis, N. Am. Fungi *130.*

7. **Nectria dispersa** Cooke & Ellis, Grevillea **5**: 33. 1876.

?*Nectria poliosa* Ellis & Ev. Jour. Myc. **2**: 39. 1886.
Dialonectria dispersa Ellis & Ev. Jour. Myc. **2**: 133. 1886.
?*Lasionectria poliosa* Ellis & Ev. Jour. Myc. **3**: 1. 1887.

Perithecia scattered, globose, with a minute ostiolum, orange, nearly smooth, collapsing; asci cylindric, 70–80 × 10–12 μ, 8-spored; spores 1-seriate with the ends overlapping, subfusoid, a little constricted at the septum, often slightly unsymmetric, with several oil-drops, hyaline, 18–22 × 7–10 μ.

On bark and old fungi.
TYPE LOCALITY: Maine.
DISTRIBUTION: Maine (and Florida?).
ILLUSTRATION: Grevillea **5**: *pl. 75, f. 14.*

8. **Nectria foliicola** Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 379. 1868.

Perithecia scattered or more or less congested, small, about 200 μ in diameter, pale-reddish, externally white, floccose except the ostiolum and surrounded at the base by

radiating mycelium, collapsing, becoming deeply pezizoid when dry; asci clavate, about 75 × 10–12 μ, 8-spored; spores partially 2-seriate, narrow-fusoid, 1-septate, hyaline, with 2 oil-drops in each cell, about 18–25 × 3–4 μ.

On leaves of *Musa*.
TYPE LOCALITY: Cuba.
DISTRIBUTION: Cuba to Mexico.

9. **Nectria Eucalypti** (Cooke & Hark.) Sacc. Syll. Fung. **9**: 969. 1891.

Dialonectria Eucalypti Cooke & Hark.; Cooke, Grevillea **12**: 82. 1884.
Dialonectria depallens Cooke & Hark.; Cooke, Grevillea **12**: 82. 1884.
Nectria depallens Sacc. Syll. Fung. **9**: 962. 1891.

Perithecia scattered, superficial, nearly globose, with a papilliform ostiolum, smooth, pale-red to yellowish, entire or often collapsing, 200–250 μ in diameter; asci clavate, 50–55 × 7–8 μ, 8-spored; spores crowded, 18–22 × 4–5 μ, 1-septate, 2-seriate.

On *Eucalyptus* and stems of *Lupinus*.
TYPE LOCALITY: California.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia **1**: *pl. 5, f. 10, 11.*

10. **Nectria Apocyni** Peck, Ann. Rep. N. Y. State Mus. **26**: 84. 1874.

Perithecia scattered or crowded in small clusters, subglobose, more or less collapsed when dry, slightly rough, dull-red; ostiolum minute; asci clavate, 60–65 × 12 μ, 8-spored; spores 2-seriate and often irregularly crowded, oblique, fusiform, with ends acute, almost sharp, 1-septate, a little constricted at the septum, granular within, 18–22 × 5–6 μ.

On the lower part of the stems of Indian hemp, *Apocynum cannabinum* L.
TYPE LOCALITY: North Greenbush, New York.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia **1**: *pl. 5, f. 12.*

11. **Nectria sulphurea** (Ellis & Calk.) Sacc. Syll. Fung. **9**: 966. 1891.

Dialonectria sulfurea Ellis & Calk.; Ellis & Ev. Jour. Myc. **4**: 57. 1888.

Perithecia scattered, sulfur-yellow-pruinose and seated on a sulfur-yellow-pruinose base 1 or more cm. in diameter, often becoming reddish-brown with age, 200 μ in diameter; asci evanescent; spores small, fusoid, with the ends obtusely pointed, 1-septate and constricted at the septum, often with an oil-drop in each cell, 7–12 × 3–4 μ.

Parasitic on old fungi, *Stereum* sp.
TYPE LOCALITY: Jacksonville, Florida.
DISTRIBUTION: Ohio to Florida.
ILLUSTRATION: Mycologia **1**: *pl. 5, f. 13.*
EXSICCATI: Ellis & Ev. N. Am. Fungi *1947.*

12. **Nectria truncata** Ellis, Am. Nat. **17**: 194. 1883.

Perithecia minute, 125–150 μ in diameter, gregarious, yellowish (dried specimens almost white), slightly collapsing, becoming subtruncate, or with the ostiolum still more depressed so as to appear umbilicate; asci when young tapering into a rather pointed apex, finally clavate, 35–40 × 5 μ, 8-spored; spores crowded, fusoid, 1-septate, slightly constricted, 12 × 2–3 μ.

On the inside of white cedar bark which has been stripped from the tree.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia **1**: *pl. 5, f. 14.*
EXSICCATI: Ellis, N. Am. Fungi *1332.*

13. **Nectria rhytidospora** Pat. Jour. de Bot. **3**: 343. 1889.

Perithecia scattered, or 2 or 3 closely crowded, but entirely devoid of stroma, at first very minute, becoming larger with age, at length attaining a diameter of about 300 μ,

globose to ovoid in form with the ostiolum inconspicuous, bright-red, approaching scarlet (type described as orange), externally clothed with minute, red granules; asci cylindric or subcylindric, 8-spored; spores 1-seriate, obliquely arranged in the ascus, fusoid to subellipsoid, 1-septate and slightly constricted at the septum, hyaline, granular within and usually with a distinct oil-drop in each cell, at maturity distinctly marked with longitudinal striations, which are scarcely distinct enough to roughen the outside of the spore, 16–20 × 7–10 μ.

On bark (type on *Valsa congesta* Pat.).
TYPE LOCALITY: Martinique.
DISTRIBUTION: Martinique and Jamaica.
ILLUSTRATION: Jour. de Bot. **3**: 343.

14. **Nectria Papilionacearum** Seaver, Mycologia **1**: 62. 1909.

Plants hypophyllous, scattered or gregarious, accompanying other sphaeriaceous fungi (*Parodiella*), surrounded at the base by a few white mycelial threads; perithecia subconic, bright-red, nearly scarlet, 150–175 × 175–200 μ, the walls coarsely cellular; cells very variable, but averaging 8–10 μ in diameter; asci clavate, 75 × 10 μ, 8-spored; spores 2-seriate above, often 1-seriate below, fusoid, 1-septate, constricted at the septum, with 1 or more oil-drops in each cell, 15–17 × 5–6 μ.

On leaves of papilionaceous plants, *Lespedeza*, *Rhynchosia*, and *Meibomia*, accompanying other sphaeriaceous fungi (*Parodiella*).
TYPE LOCALITY: [Lebanon,] Missouri.
DISTRIBUTION: Nebraska to South Carolina and Mississippi.
ILLUSTRATIONS: Mycologia **1**: *pl. 4, f. 7; pl. 5, f. 19.*
EXSICCATI: Rav. Fungi Am. *647* (as *Nectria Peziza*).

15. **Nectria Brassicae** Ellis & Sacc.; Sacc. Michelia **2**: 374. 1881.

Perithecia scattered or gregarious, subconic, entire or bilaterally-collapsing, blood-red, 120–150 μ in diameter; perithecial wall composed of coarse cells, variable in form and size, 5–8 μ in diameter; asci clavate, 60 × 7–8 μ, 8-spored; spores mostly 2-seriate, fusoid or subclavate, 1-septate, hyaline, 10–11 × 3–4 μ.

On herbaceous stems of various kinds, *Brassica*, *Solanum*, *Ipomoea*, etc.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: New Jersey to Louisiana.
ILLUSTRATION: Mycologia **1**: *pl. 5, f. 20.*
EXSICCATI: Ellis, N. Am. Fungi *572, 572b*; Ellis & Ev. Fungi Columb. *1747.*

16. **Nectria sanguinea** (Bolt.) Fries, Summa Veg. Scand. 388. 1849.

Sphaeria sanguinea Bolt. Hist. Fung. 121. 1789.
? *Hypoxylon phoeniceum* Bull. Herb. Fr. *pl. 487, f. 3.* 1790.
? *Sphaeria fibriseda* Schw. Trans. Am. Phil. Soc. II. **4**: 213. 1832.
Nectria viticola Berk. & Curt.; Berk. Grevillea **4**: 45. 1875.
? *Nectria fibriseda* Sacc. Syll. Fung. **2**: 510. 1883.
Nectria athroa Ellis & Ev. Proc. Acad. Phila. 1890: 247. 1890.
? *Nectria obscurata* Ellis & Ev.; C. L. Smith, Bull. Lab. Nat. Hist. Univ. Iowa **2**: 398. 1893.

Perithecia gregarious or scattered, superficial, ovoid, mostly entire, but often collapsing when prematurely dried, smooth, blood-red, shining, about 200–275 × 250–300 μ when mature; ostiolum obtuse but very prominent; asci cylindric, 60–75 × 6–7 μ, 8-spored; spores obliquely arranged in the ascus, 1-seriate below, partially 2-seriate above, narrow-fusoid or subellipsoid, slightly constricted, 10–12 × 4–5 μ, granular within.

On rotten wood.
TYPE LOCALITY: England.
DISTRIBUTION: New Jersey to Kansas; also in Europe.
ILLUSTRATIONS: Bolt. Hist. Fung. *pl. 121, f. 1*; Mycologia **1**: *pl. 4, f. 6; pl. 5, f. 17.*
EXSICCATI: Wilson & Seaver, Ascom. *87.*

17. **Nectria episphaeria** (Tode) Fries, Summa Veg. Scand. 388. 1849.

Sphaeria episphaeria Tode, Fungi Meckl. **2**: 21. 1791.
Nectria microspora Cooke & Ellis, Grevillea **5**: 53. 1876.

Perithecia gregarious or scattered, superficial, subovoid, for the most part bilaterally collapsing when dry, smooth, blood-red, variable in size, 150–250 μ in diameter; perithecial

wall composed of rather coarse cells; asci cylindric, 60 × 5 μ, 8-spored; spores obliquely 1-seriate, broad-fusoid, 4–6 × 9–12 (mostly 5 × 10) μ, 1-septate, hyaline.

On old fungi of various kinds, especially sphaeriaceous fungi.
TYPE LOCALITY: Mecklenburg, Germany.
DISTRIBUTION: New York to North Dakota, California, and Nicaragua; also in Europe.
ILLUSTRATIONS: Tode, Fungi Meckl. *pl. 11, f. 89;* Mycologia 1: *pl. 4, f. 1, 2; pl. 5, f. 18.*
EXSICCATI: Ellis, N. Am. Fungi *469, 469 (b);* Rav. Fungi Am. *340;* C. L. Smith, Central Am. Fungi *4;* Wilson & Seaver, Ascom. *60.*

18. **Nectria suffulta** Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 378. 1868.

Nectria setosa Ferd. & Winge, Bot. Tidssk. **29**: 11. 1908.

Perithecia superficial, scattered, gregarious or occasionally 2 or 3 crowded together but with no trace of stroma, individual perithecia often surrounded near the base with a halo of radiating mycelium, at first minute and whitish, large at maturity, attaining a diameter of 500 μ and becoming orange or slightly translucent, subglobose, collapsing, deeply pezizoid when dry, sparingly clothed externally with straight, rigid, hyaline (white to the naked eye) hairs which stand erect on all sides giving the species a characteristic appearance; hairs thick near the base, often 25 μ in diameter, tapering upward, becoming rather sharp-pointed, composed of a dense fascicle of parallel mycelial threads (bearing conidia?), 100 μ long; asci cylindric or subclavate, 8-spored; spores 1-seriate with ends overlapping or, when young, partially 2-seriate, 1-septate, hyaline, with an oil-drop in each cell, 15–20 × 6–8 μ.

On dead stems of *Musa* and dead stems and leaves of some undetermined herbaceous plant.
TYPE LOCALITY: Cuba.
DISTRIBUTION: West Indies and Mexico.
ILLUSTRATION: Bot. Tidssk. **29**: *pl. 1, f. 4.*

19. **Nectria consors** (Ellis & Ev.) Seaver, Mycologia **1**: 61. 1909.

Dialonectria consors Ellis & Ev. Jour. Myc. **4**: 122. 1888.
Nectriella consors Sacc. Syll. Fung. **9**: 941. 1891.

Perithecia subconic, tapering above into an acute ostiolum, scarlet, minute, 125–150 μ in diameter, clothed, except the ostiolum, with bristle-like, obtusely pointed, septate, reddish hairs; asci clavate, 50 × 6–7 μ, 8-spored; spores 2-seriate, fusoid, hyaline, 1-septate, 7–10 × 2–3 μ.

On dead stems of *Polygonum*.
TYPE LOCALITY: St. Martinsville, Louisiana.
DISTRIBUTION: Known only from the type locality.

20. **Nectria flavociliata** Seaver, Mycologia **1**: 54. 1909.

Nectria bicolor Ellis & Ev. Proc. Acad. Phila. 1893: 443. 1894. Not *Nectria bicolor* Berk. & Br. 1873.

Perithecia thickly gregarious, large, 250–300 μ in diameter, subglobose with a papilliform ostiolum, clothed, except a space around the ostiolum, with obtuse, septate, clavate hairs which are hyaline near the base but sulfur-yellow near the apex; asci clavate, 35–40 × 7–8 μ, 8-spored; spores 2-seriate, crowded, fusoid, 1-septate, hyaline, 8–12 × 2.5–3 μ.

On dead twigs of *Hicoria*.
TYPE LOCALITY: Wilmington, Delaware.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia 1: *pl. 5, f. 11.*

21. **Nectria lactea** Ellis & Morgan; Ellis & Ev. N. Am. Pyrenom. 110. 1892.

Perithecia minute, 125–200 μ in diameter, nearly globose, gregarious or crowded, yellowish, at first clothed with a dense covering of delicate, white hairs, so that the whole cluster of plants has a whitish appearance, except the ostiolum, which is bare, becoming yellowish with age; hairs about 2 μ in diameter, usually roughened externally with minute granules but occasionally smooth; asci cylindric, 8-spored, 40–50 × 5 μ; spores 1-seriate, broad-ellipsoid, hyaline, 1-septate, with an oil-drop in each cell, 5–8 × 3–4 μ.

On old fungi (*Polyporus* and *Stereum*), and also on rotten wood.
TYPE LOCALITY: Ohio.
DISTRIBUTION: New York to Ohio, Florida, and Louisiana.
ILLUSTRATION: Mycologia 1: *pl. 5, f. 5.*

22. **Nectria Rexiana** Ellis, Am. Nat. **17**: 194. 1883.

? *Hypocrea tenerrima* Ellis & Ev. Proc. Acad. Phila. **1893**: 442. 1894.

Perithecia nearly globose, yellowish, clothed with a dense covering of long, flexuous, hyaline (white to the naked eye), septate, rough hairs; perithecia 150–200 μ in diameter; asci cylindric, 30–40 $\times$ 4–5 μ, 8-spored; spores mostly 1-seriate or partially 2-seriate above, minute, cylindric or allantoid, hyaline, faintly 1-septate, 5 $\times$ 2 μ.

Parasitic on a slime-mould (*Chondrioderma*).
TYPE LOCALITY: Adirondack mountains, New York.
DISTRIBUTION: Maine to New York.
ILLUSTRATION: Mycologia **1**: *pl. 5, f. 6.*

23. **Nectria squamulosa** Ellis, Bull. Torrey Club **9**: 20. 1882.

Perithecia gregarious, minute, 100–125 μ in diameter, light-colored (when dry nearly white), with a prominent darker ostiolum, clothed externally, except the ostiolum, with a dense covering of delicate, hyaline hairs which are 2 μ in diameter and 10–20 μ long; asci narrowed above and below, 20–25 $\times$ 5–6 μ, 8-spored; spores mostly 2-seriate, minute, 6–7 $\times$ 1.5–2 μ, 1-septate, sometimes very slightly constricted.

On rotten wood.
TYPE LOCALITY: [Newfield,] New Jersey.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia **1**: *pl. 5, f. 7.*

DOUBTFUL AND EXCLUDED SPECIES

Nectria flavella Pat. Bull. Soc. Myc. Fr. **16**: 186. 1901.

Nectria gibberelloides (Ellis & Ev.) Sacc. Syll. Fung. **9**: 963. 1891. *Dialonectria gibberelloides* Ellis & Ev. Jour. Myc. **4**: 122. 1888. Not a *Nectria*.

Nectria infusaria Cooke & Hark.; Cooke, Grevillea **12**: 101. 1884.

Nectria lagenaeformis Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 378. 1868. Not a *Nectria*.

Nectria Leightoni Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 379. 1868. A discomycete.

Nectria mobilis (Tode) Fries, Summa Veg. Scand. 388. 1849. *Sphaeria mobilis* Tode, Fungi Meckl. **2**: 8. 1791. Reported from North America.

Nectria perpusilla (Mont.) Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 378. 1868. *Hypocrea perpusilla* Mont. Pl. Cell. Cuba 337. 1842.

Nectria pityrodes (Mont.) Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 378. 1868. *Sphaeria pityrodes* Mont. Pl. Cell. Cuba 333. 1842.

Nectria secalina Ellis & Ev. Jour. Myc. **8**: 66. 1902. No specimen found in the Ellis collection. Description suggests *Creonectria ochroleuca* (Schw.) Seaver.

Nectria sinopica Fries, Summa Veg. Scand. 388. 1849. *Sphaeria sinopica* Fries, Elench. Fung. **2**: 81. 1828. Reported from North America.

Nectria subiculosa Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 378. 1868.

Nectria zealandica Cooke, Grevillea **8**: 65. 1879. Reported from North America.

6. **CALONECTRIA** De-Not. Comm. Critt. Ital. **2**: 477. 1867.

Perithecia free, often closely gregarious, or scattered, with no true stroma, but perithecia often surrounded with radiating white mycelium which gives to some of the species a stromate appearance; perithecia globose to ovoid, red or yellow; asci elongate, 8-spored; spores elongate, more than 1-septate.

Type species, *Calonectria Daldiniana* De-Not.

Spores small, not exceeding 15 μ in length.	1. *C. erubescens.*
Spores large, 25–35 μ in length.	
Spores subellipsoid; plants occurring on fungi on dead branches.	2. *C. diminuta.*
Spores fusiform; plants on leaves.	3. *C. melioloides.*

1. **Calonectria erubescens** (Roberge) Sacc. Michelia **1**: 309. 1878.

Sphaeria erubescens Roberge; Desmaz. Ann. Sci. Nat. III. **6**: 72. 1846.

Perithecia minute, gregarious in clusters or scattered, surrounded by a scant growth of radiating mycelial threads, at first pale-red, fading to pale-yellow, subglobose, with a

minute ostiolum, often collapsing when dry, becoming pezizoid; asci clavate, 35–40 × 6 μ; spores crowded, small, ellipsoid to fusoid, 1–3-septate, 10–12 × 2–3 μ.

On living leaves of various kinds, usually on the remains of *Meliola*.
TYPE LOCALITY: France.
DISTRIBUTION: Florida; also in Europe.
EXSICCATI: Desmaz. Pl. Crypt. *1766* (cotype).

2. Calonectria diminuta (Berk.) Berl. & Vogl.; Sacc. Syll. Fung. 9: 985. 1891.

Nectria diploa diminuta Berk. Grevillea 4: 46. 1875.
Dialonectria diminuta Cooke, Grevillea 12: 83. 1884.
? *Calonectria Dearnessii* Ellis & Ev. Proc. Acad. Phila. 1890: 245. 1890.

Perithecia minute, 150–175 μ in diameter, scattered or more or less crowded on the substratum, surrounded by radiating mycelium giving somewhat the appearance of a stroma but no true stroma present, orange, partially collapsing; asci cylindric or clavate; spores irregularly crowded, variable in size and form, ellipsoid, clavate, or subfusoid, usually 3-septate, hyaline, 25–35 × 6–7 μ.

On sphaeriaceous fungi (*Massaria*, etc.).
TYPE LOCALITY: South Carolina.
DISTRIBUTION: South Carolina (and Canada?).
EXSICCATI: Ellis & Ev. N. Am. Fungi *2548* (*C. Dearnessii*).

3. Calonectria melioloides Speg. Anal. Soc. Ci. Argent. 19: 41. 1885.

? *Calonectria guarapiensis* Speg. Anal. Soc. Ci. Argent. 19: 41. 1885.

Plants gregarious and surrounded by an evanescent, white mycelial growth consisting of delicate radiating hyphae; perithecia subglobose to ovoid, 200–250 μ in diameter, with the wall composed of irregular cells 5–8 μ. in diameter, clothed with a few rigid, hyaline, many-septate hairs with a bulbous base; hairs 7–8 μ in diameter and 200–400 μ long; asci clavate, 80–100 × 12–15 μ; spores 2-seriate or irregularly crowded, fusiform, 3-septate, hyaline, 30–35 × 7–8 μ.

On the mycelium of *Meliola* on living leaves.
TYPE LOCALITY: Brazil.
DISTRIBUTION: Louisiana; also in South America.
EXSICCATI: Roum. Fungi Sel. *4141* (cotype); Roum. Fungi Gall. *4047* (cotype of *C. guarapiensis* Speg.).

DOUBTFUL SPECIES

Calonectria Curtisii (Berk.) Sacc. Michelia 1: 316. 1878. *Nectria Curtisii* Berk. Grevillea 4: 46. 1875.

Calonectria muscivora (Berk & Br.) Sacc. Michelia 1: 315. 1878. *Sphaeria muscivora* Berk. & Br. Ann. Mag. Nat. Hist. II. 7: 188. 1851. *Nectria muscivora* Cooke, Handb. Brit. Fungi 786. 1871. Reported from North America.

7. OPHIONECTRIA Sacc. Michelia 1: 323. 1878.

Tubeufia Penz. & Sacc. Malpighia 11: 517. 1898.

Perithecia scattered or gregarious, globose or pyriform, superficial, light-colored, yellow or brownish; asci cylindric to clavate, 8-spored; spores very much elongate, approaching filiform, at least 10 times as long as broad, many-septate.

Type species, *Nectria trichospora* Berk. & Br.

Perithecia globose or subglobose; spores 35–50 μ long; on fungi. 1. *O. cerea.*
Perithecia elongate, substipitate; spores 60–75 μ long; on cornstalks. 2. *O. cylindrothecia.*

1. Ophionectria cerea (Berk. & Curt.) Ellis & Ev. N. Am. Pyrenom. 118. 1892.

Sphaeria cerea Berk. & Curt.; Berk. Grevillea 4: 108. 1876.
Calonectria cerea Sacc. Syll. Fung. 2: 551. 1883.
Nectria fulvida Ellis & Ev. Jour. Myc. 1: 140. 1885.
Dialonectria fulvida Ellis & Ev. Jour. Myc. 2: 136. 1886.
Ophionectria Everhartii Ellis & Gall. Jour. Myc. 6: 32. 1890.

Perithecia gregarious, nearly globose, dull-yellow, becoming darker with age, more or less rough and furfuraceous externally, or with a few hair-like outgrowths, with a papilliform

ostiolum, 150–175 μ in diameter; asci cylindric, 65–80 × 8–12 μ; spores varying from fusiform to cylindric or clavate, straight or curved, with the ends usually acute, hyaline or very pale-yellow, 7–10-septate, 35–50 × 3–3.5 μ; paraphyses short, indistinct.

On old fungi, especially *Diatrype*.
TYPE LOCALITY: South Carolina.
DISTRIBUTION: Newfoundland and Ontario to South Carolina; also in Europe.
ILLUSTRATION: Ellis & Ev. N. Am. Pyrenom. *pl. 15, f. 1–3*.

2. **Ophionectria cylindrothecia** Seaver, Mycologia **1**: 70. 1909.

Tubeufia cylindrothecia Höhnel, Sitz.-ber. Akad. Wien Math.-Nat. 118[1]: 1479. 1909.

Perithecia gregarious or scattered, cylindric to clavate or fusoid, tapering below into a stem-like base, also tapering above, yellowish, translucent, nearly smooth, rather hard when dry, often with a few septate, hair-like mycelial strands near the base, naked above, 125–150 × 275–300 μ; asci cylindric or clavate, 100–125 × 12–15 μ; spores apparently enclosed in a separate membrane within the ascus, so that the outer wall of the ascus stretches 10–20 μ beyond the apex of the spore-cluster; individual spores tapering toward each end, hyaline or very slightly yellowish, 7–12-septate, 60–75 × 5 μ; paraphyses present, indistinct.

On old cornstalks, *Zea Mays* L.
TYPE LOCALITY: Ohio.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia 1: *pl. 4, f. 4*.

DOUBTFUL SPECIES

Ophionectria Theobromae Pat.; Duss, Énum. Champ. Guad. 81. 1903.
Torrubiella rubra Pat.; Duss, Énum. Champ. Guad. 81. 1903.

8. **MELANOSPORA** Corda, Ic. Fung. **1**: 24. 1837.

Perithecia superficial, without stroma, globose-pyriform, with a long neck, usually clothed at the tip with a fringe of hairs, and the entire perithecium often hairy; asci broad-clavate, 4–8-spored; spores simple, colored, brown or brownish-black.

Type species, *Melanospora Zamiae* Corda.

Spores small, 10–12 × 9–10 μ. — 1. *M. chionea*.
Spores large, 20–33 μ long.
  Spores ellipsoid. — 2. *M. Townei*.
  Spores cuboid. — 3. *M. Poae*.

1. **Melanospora chionea** (Fries) Corda, Ic. Fung. **1**: 24. 1837.

Ceratostoma chioneum Fries, Obs. Myc. **2**: 340. 1818.
Sphaeria chionea Fries, Syst. Myc. **2**: 446. 1823.

Perithecia gregarious or scattered, globose, clothed with a dense covering of white hairs, with a light-colored beak up to 1 mm. long and 100 μ in diameter, clothed with a few hairs at the apex; hairs which clothe the perithecia 3 μ in diameter, septate, long and flexuous; asci evanescent, obovoid-clavate, stipitate, 35–40 × 13–16 μ, 8-spored; spores 2-seriate or irregularly crowded, globose-ellipsoid, brown, 10–12 × 9–10 μ.

On decaying pine leaves and more rarely on leaves of deciduous trees.
TYPE LOCALITY: Europe.
DISTRIBUTION: Ontario; also in Europe.
ILLUSTRATIONS: Fries, Obs. Myc. *pl. 7, f. 2*; Corda, Ic. Fung. 1: *pl. 7, f. 297 B*; Ellis & Ev. N. Am. Pyrenom. *pl. 14, f. 1–5*; Rab. Krypt. Fl. 1[2]: 85. *f. 1–3*; Mycologia 1: *pl. 4, f. 9*.

2. **Melanospora Townei** D. Griff. Bull. Torrey Club **26**: 434. 1899.

Perithecia superficial, scattered, thin, membranaceous, transparent, globose, covered uniformly with long, straight or slightly wavy, irregularly outlined hairs, and surmounted by a cylindric beak which terminates in a loose aggregation of straight or slightly wavy hairs of unequal length, white turning to light transparent umber and finally black, 225–300 μ in diameter; beak about equal in length to the diameter of the perithecium and 60 μ in diameter; asci very evanescent, broadly clavate to ovoid, short-stipitate, 30–40 × 60–75 μ,

8-spored; spores crowded, olivaceous, becoming dark and opaque, ellipsoid, 15–17 $\mu \times$ 20–25 μ, with a hyaline pore in the flat, truncate ends.

On decaying Russian thistle (*Salsola Tragus* L.).
TYPE LOCALITY: Aberdeen, South Dakota.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Bull. Torrey Club **26**: *pl. 365, f. 20–22.*

3. **Melanospora Poae** D. Griff. Bull. Torrey Club **26**: 433. 1899.

Perithecia scattered or gregarious, superficial, thin, membranaceous, white, turning black to opaque, prolonged above into a curved or twisted beak once to twice the length of the perithecium, covered with long, delicate, flexuous, sparingly septate hairs, 140–180 $\times$ 500–600 μ; asci broadly clavate, short-stipitate, evanescent, without paraphyses, 10–13 $\times$ 26–30 μ; spores very variable, oblong or cuboid with an apical groove and often flattened parallel to it.

On dead leaves and culms of *Poa nevadensis* Vasey.
TYPE LOCALITY: Buffalo, Wyoming.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Bull. Torrey Club **26**: *pl. 365, f. 24–26.*

EXCLUDED SPECIES

Melanospora lagenaria (Pers.) Fuckel, Symb. Myc. 126. 1869. *Sphaeria lagenaria* Pers. Syn. Fung. 58. 1801. *Ceratostoma lagenarium* Fries, Summa Veg. Scand. 396. 1849. *Auerswaldia lagenaria* Rab. Hedwigia 1: 116. 1856.

Melanospora parasitica Tul. Fung. Carp. 3: 10. 1865. *Sphaeronema parasitica* L. Tul. Ann. Sci. Nat. IV. **8**: 40. 1857. *Ceratostoma biparasiticum* Ellis & Ev. Bull. Torrey Club **24**: 127. 1897.

9. **LETENDRAEA** Sacc. Michelia **2**: 73. 1880.

Perithecia superficial, gregarious, globose or ovoid, with a papilliform ostiolum; asci 8-spored, cylindric or clavate; spores ellipsoid or fusoid, 1-septate, brown.

Type species, *Letendraea eurotioides* Sacc.

1. **Letendraea luteola** Ellis & Ev. Proc. Acad. Phila. **1895**: 415. 1895.

Perithecia gregarious, 250–300 μ in diameter, brown, becoming black with extreme age, with a prominent ostiolum, entire or occasionally collapsing; asci cylindric, 75 $\times$ 5 μ; spores mostly 1-seriate or partially 2-seriate above, ellipsoid, straight or slightly curved, becoming brown, 1-septate, scarcely constricted at the septum, with an oil-drop in each cell, 10–12 $\times$ 4–5 μ; paraphyses present, delicate.

On rotten wood.
TYPE LOCALITY: Ohio.
DISTRIBUTION: Known only from the type locality.

10. **SPHAEROSTILBE** Tul. Fung. Carp. **1**: 130. 1861.

Stromata (*Stilbum*, *Atractium*, *Microcera*) consisting of a slender stalk with a subglobose head or conic in form; perithecia bright-colored, membranaceous, and globose, subglobose, or ovoid; asci cylindric or subcylindric, 8-spored; spores hyaline, 1-septate, ellipsoid or subellipsoid.

Type species, *Stilbum aurantiacum* Bab.

Stromata consisting of a slender stalk with a clavate or subglobose head.
  Spores small, 10–14 $\times$ 4–6 μ. 1. *S. gracilipes.*
  Spores large, 22–26 $\times$ 7 μ. 2. *S. cinnabarina.*
Stromata conic in form.
  On bark. 3. *S. flammea.*
  On scale-insects. 4. *S. coccophila.*

1. **Sphaerostilbe gracilipes** Tul. Fung. Carp. **1**: 130. 1861.

Stilbum gracilipes L. Tul. Ann. Sci. Nat. IV. **5**: 114. 1856.
Stilbum corynoides Ellis & Ev. Jour. Myc. **1**: 153. 1885.

Stromata consisting of a slender stalk 2–3 mm. high, of a grayish color, with a globose orange head 0.5–1 mm. in diameter; conidia ellipsoid, hyaline, 5–6 × 2 μ; perithecia in dense cespitose clusters 1–2 mm. in diameter at the base of the stalked stroma, 15–30 in each cluster, reddish, becoming pale (in dried specimens often pale-yellow), 250–300 μ in diameter, nearly globose, partially collapsing or entire, slightly roughened; asci cylindric, 75–80 × 7–8 μ; spores mostly 1-seriate, ellipsoid to subfusoid, hyaline, 1-septate, 10–14 × 4–6 μ, usually not constricted.

On bark of various trees and shrubs, *Hicoria*, *Citrus*, *Hibiscus*, *Platanus*.
TYPE LOCALITY: Europe.
DISTRIBUTION: South Carolina to Florida and Louisiana; also in Europe.
ILLUSTRATION: Ellis & Ev. N. Am. Pyrenom. *pl. 12, f. 1–4.*
EXSICCATI: Ellis & Ev. N. Am. Fungi *2131, 2132*; Rav. Fungi Am. *285.*

2. **Sphaerostilbe cinnabarina** (Mont.) Tul. Fung. Carp. **1**: 130. 1861.

Stilbum cinnabarinum Mont. Ann. Sci. Nat. II. **8**: 360. 1837.

Stromata with a slender stalk 1–2 mm. long and a globose or clavate red head; conidia nearly ellipsoid, straight or a little curved, 3–5 × 2 μ, granular within; perithecia few, surrounding the base of the stalked stroma, sessile, globose, smooth, orange, finally partially collapsed; asci clavate, about 80 × 13–16 μ; spores 2-seriate, ovoid, 22–26 × 7 μ, filled with numerous oil-drops.

On bark of trees and shrubs.
TYPE LOCALITY: Cuba.
DISTRIBUTION: South Carolina to Mexico and Cuba; also in Europe.
EXSICCATI: Ellis & Ev. N. Am. Fungi *2133.*

3. **Sphaerostilbe flammea** (Berk. & Rav.) Tul. Fung. Carp. **1**: 130. 1861.

Atractium flammeum Berk. & Rav.; Berk. & Br. Ann. Mag. Nat. Hist. II. **13**: 461. 1854.
Stilbum flammeum L. Tul. Ann. Sci. Nat. IV. **5**: 114. 1856.
Nectria laeticolor Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 377. 1868.

Stromata conic in form with the top finally becoming flattened; conidia fusiform, a little curved, 5–8-septate, about 60–75 × 5–7 μ; perithecia nearly globose, bright-red, smooth or only minutely rough, crowded on or near the base of the stroma; asci cylindric, about 75–80 × 8–10 μ; spores 1-seriate, ellipsoid to subfusoid, 1-septate, hyaline, 15 × 6–7 μ.

On bark of trees, *Acer*, *Crataegus*, *Salix*.
TYPE LOCALITY: Europe.
DISTRIBUTION: Ontario to Louisiana and South Carolina; also in Europe.
ILLUSTRATION: Tul. Fung. Carp. **3**: *pl. 13, f. 10–12.*
EXSICCATI: Ellis & Ev. N. Am. Fungi *3311.*

4. **Sphaerostilbe coccophila** (Desmaz.) Tul. Fung. Carp. **1**: 130. 1861.

Microcera coccophila Desmaz. Ann. Sci. Nat. III. **10**: 359. 1848.
?*Nectria aurantiicola* Berk. & Br. Jour. Linn. Soc. **14**: 117. 1873.
?*Nectria aglaeothele* Berk. & Curt.; Berk. Grevillea **4**: 45. 1875.
Nectria subcoccinea Sacc. & Ellis; Sacc. Michelia **2**: 570. 1882.

Stromata consisting of a short, stout stalk with an orange head; conidia straight or more often curved, long, fusiform, 3–7-septate, 50–90 × 5–6 μ, occasionally shorter; perithecia more or less cespitose, bright-orange, with a prominent, rather acute ostiolum; asci cylindric, 75 × 8–10 μ; spores 1-seriate, ellipsoid or subellipsoid, 12–18 × 7–9 μ.

On dead scale-insects.
TYPE LOCALITY: France.
DISTRIBUTION: Florida to Alabama, Pennsylvania, and the West Indies; also in Europe.
ILLUSTRATION: Bull. Fla. Exp. Sta. 94: *f. 2–3.*
EXSICCATI: Ellis, N. Am. Fungi *1333*; Rav. Fungi Car. **1**: *57.*

DOUBTFUL SPECIES

Sphaerostilbe lateritia (Berk.) Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 377. 1868. *Stilbum lateritium* Berk. Ann. Nat. Hist. **4**: 291. 1840. Immature.

Sphaerostilbe nitida Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 377. 1868. Immature.

Sphaerostilbe Wrightii Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 377. 1868.

11. MEGALONECTRIA Speg. Anal. Soc. Ci. Argent. 12: 217. 1881.

Stromata consisting of a slender stalk with a globose head; perithecia globose or subglobose, bright-colored, red or reddish, entire or collapsing, borne in cespitose clusters on or surrounding the base of the stroma; asci clavate, 8-spored; spores ellipsoid, many-septate, becoming muriform, hyaline.

Type species, *Sphaeria pseudotrichia* Schw.

1. Megalonectria pseudotrichia (Schw.) Speg. Anal. Soc. Ci. Argent. 12: 217. 1881.

Sphaeria pseudotrichia Schw.; Berk. & Curt. Jour. Acad. Phila. II. **2**: 289, as synonym. 1853.
Nectria pseudotrichia Berk. & Curt. Jour. Acad. Phila. II. **2**: 289. 1853.
Sphaerostible pseudotrichia Berk. & Br. Jour. Linn. Soc. **14**: 114. 1873.

Stromata gregarious, each consisting of a slender stalk with a subglobose, reddish head; conidia 3–5 × 2 μ, hyaline; perithecia nearly globose, subcespitose, usually in or surrounding the base of the stroma, red, minutely rough, finally collapsing; asci clavate, very broad, 60–75 × 20–22 μ; spores 2-seriate or irregularly crowded, large, 7–9-septate and muriform, yellowish-hyaline, 25–35 × 7–11 μ.

On bark, wood, etc.
TYPE LOCALITY: Surinam.
DISTRIBUTION: West Indies; also in South America.
ILLUSTRATIONS: Jour. Acad. Phila. II. **2**: *pl. 25, f. 9*; Mycologia **1**: *pl. 13, f. 1–2*.

DOUBTFUL SPECIES

Megalonectria caespitosa Speg. Bol. Acad. Ci. Cordoba **11**: 541. 1889. This species is said to be distinguished by the larger spores, which measure 30–45 × 10–12 μ. Reported from Nebraska.

12. ALLANTONECTRIA Earle, in Greene, Pl. Baker. 2: 11. 1901.

Perithecia red, occurring in cespitose clusters on a stroma as in *Creonectria;* asci cylindric to clavate, 8-spored; spores allantoid, simple, hyaline.

Type species, *Allantonectria Yuccae* Earle.

1. Allantonectria Yuccae Earle, in Greene, Pl. Baker. 2: 11. 1901.

Perithecia densely cespitose in clusters of 12–20, seated on a stroma; perithecial clusters erumpent, thickly scattered or subconfluent, averaging about 1 mm. in diameter; perithecia bright-red becoming dull-red with age, subglobose, smooth, or minutely roughened, partially collapsing when dry, 100–125 μ in diameter; asci clavate or cylindric, 8-spored; spores 2-seriate or irregularly crowded, allantoid, 4–5 × 1 μ.

On dead leaves of *Yucca* sp.
TYPE LOCALITY: Hermosa, Colorado.
DISTRIBUTION: Colorado.

13. SPHAERODERMATELLA Seaver, Mycologia 1: 182. 1909.

Stromata erumpent, fleshy; perithecia in dense, cespitose clusters seated on the stroma which is entirely obscured at maturity, more or less rough and furfuraceous; asci broad-clavate to ovoid, 4–8-spored; spores simple, becoming dark-colored and opaque.

Type species, *Melanospora Helleri* Earle.

1. **Sphaerodermatella Helleri** (Earle) Seaver, Mycologia **1** : 182. 1909.

Melanospora (?) *Helleri* Earle, Muhlenbergia 1 : 13. 1901.
Sphaeroderma Helleri Sacc. Syll. Fung. **17** : 781. 1905.

Stromata erumpent; perithecia superficial, densely cespitose, 3–20 on an indistinct basal stroma, large, 0.5–1 mm. in diameter, deeply collapsing, grayish externally from irregular, flat, finally deciduous, wart-like projections apparently formed by the cracking of the hard outer layer; substance of the perithecial wall of a dark-brown color, soft, composed of small-celled parenchyma; ostiolum slightly prominent when young, perforation obscure when collapsed; asci oblong, about 100 × 30 μ, soon evanescent, 4–8-spored; spores 2-seriate, ellipsoid, simple, at first hyaline, finally opaque and black, surrounded with a more or less distinct hyaline coat, about 25–28 × 12–20 μ, expelled and blackening the matrix when mature; paraphyses indistinct.

On bark of tree.
TYPE LOCALITY: Santurce, Porto Rico.
DISTRIBUTION: Known only from the type locality.

14. **NEOCOSMOSPORA** E. F. Smith, Bull. U. S. Dep. Agr. Veg. Phys. **17** : 45. 1899.

Microconidia (*Cephalosporium* stage) hyaline, ovoid to narrow-ellipsoid, straight or slightly curved, simple, 4–25 × 2–6 μ, borne singly on the ends of short branches of a mycelium which fills the water-ducts and interior parts of the living stems of the hosts, often 1–2-septate; macroconidia (*Fusarium* stage) lunulate, 3–5-septate, 30–40 × 4–6 μ, borne on the surface of dead stems in immense numbers, on numerous small, ovoid or hemispheric conidial beds; conidiophores compact, pink in mass; on the surface of the dead stems of the host, globose, thin-walled, smooth, terminal or intercalary bodies are formed, brick-red in mass, individuals 10–12 μ in diameter, extreme limits 7–15 μ; perithecia as in *Nectria;* asci numerous, subcylindric, 8-spored; spores 1-seriate, brown, globose or short-ellipsoid, continuous, with a distinct wrinkled exospore (the latter sometimes wanting in small spores); paraphyses present, inconspicuous, broad, loosely jointed, unbranched, consisting of 5 cells.

Type species, *Fusarium vasinfectum* Atk.

1. **Neocosmospora vasinfecta** (Atk.) E. F. Smith, Bull. U. S. Dep. Agr. Veg. Phys. **17** : 45. 1899.

Fusarium vasinfectum Atk. Bull. Ala. Exp. Sta. 41 : 28. 1893.
Fusarium niveum E. F. Smith, Proc. Am. Assoc. Adv. Sci. **43** : 289. 1895.

Perithecia gregarious, often closely crowded, bright-red, smooth, with a very prominent, obtuse ostiolum, becoming perforate; perithecial wall composed of large cells, 12–15 μ in diameter; perithecia 200–225 × 250–275 μ; asci nearly cylindric, 85-90 × 12–15 μ; spores 1-seriate or often irregularly crowded, globose or subglobose, at first hyaline and surrounded with a transparent exospore, becoming brown, with several large oil-drops within, the outer surface becoming wrinkled and rough at maturity, mostly 10 μ in diameter; paraphyses present, inconspicuous, simple, septate.

Parasitic on cotton, okra, cowpea, and watermelon.
TYPE LOCALITY: Alabama.
DISTRIBUTION: Virginia to Alabama, California, and Oregon.
EXSICCATI: Ellis & Ev. Fungi Columb. *1434.*
ILLUSTRATIONS: Bull. U. S. Dep. Agr. Veg. Phys. **17** : *pl. 1–10.*

15. **CREONECTRIA** Seaver, Mycologia **1** : 183. 1909.

Nectria Fries, Summa Veg. Scand. 387, in part. 1849.

Stromata fleshy or subfleshy, tubercular or depressed, red, yellow, brown, or occasionally black (at least with age); perithecia globose or subglobose, with the ostiolum often depressed with age, smooth, verrucose or furfuraceous, superficial on or surrounding the

stroma; asci cylindric or clavate, mostly 8-spored, with the spores occasionally accompanied by numerous other minute spore-like bodies in the ascus; spores 1–2-seriate or irregularly crowded, ellipsoid to fusoid, straight or curved, 1-septate, hyaline; paraphyses present or not evident.

Type species, *Tremella purpurea* L.

Perithecia some shade of red, scarlet, brick-red, or brownish-black.
  Perithecia dull brick-red, becoming brown or black with age.
    Ascospores not accompanied by spore-like bodies in the ascus.
      Perithecia verrucose, covered with coarse granules.
        Stromata tubercular, prominent. 1. *C. purpurea.*
        Stromata concave, not rising above the surface of the substratum. 2. *C. verrucosa.*
      Perithecia smooth or only minutely rough, becoming black with age. 3. *C. atrofusca.*
    Ascospores accompanied by minute spore-like bodies in the ascus. 4. *C. Coryli.*
  Perithecia scarlet or blood-red, becoming reddish-purple with age.
    Spores ellipsoid or subellipsoid, with ends obtuse.
      Perithecia collapsing with age.
        Perithecia becoming truncate. 5. *C. pithoides.*
        Perithecia becoming pezizoid when collapsed. 6. *C. rubicarpa.*
      Perithecia entire; ostiolum very prominent. 7. *C. mammoidea.*
    Spores fusoid, with ends acute or subacute.
      Spores narrow-fusoid, 3 times as long as broad. 8. *C. coccinea.*
      Spores broad-fusoid, twice as long as broad.
        Spores comparatively small, not more than 16 μ long.
          Perithecia vertically collapsing; on *Diatrypella.* 9. *C. nipigonensis.*
          Perithecia mostly entire; on coniferous wood. 10. *C. Cucurbitula.*
        Spores comparatively large, 20–25 μ long. 11. *C. diploa.*
Perithecia pale-red or some shade of yellow or yellowish-white.
  Stromata soft, floccose; perithecia cespitose on the stroma.
    Perithecia strongly verrucose; conidial phase a *Fusarium.* 12. *C. Ipomoeae.*
    Perithecia not strongly verrucose.
      Conidial phase a *Verticillium.*
        Spores 12–14 × 5 μ; on cacao pods. 13. *C. Bainii.*
        Spores 8–12 × 3–4 μ; on bark, decaying seeds, etc.
          Stromata tubercular; on bark. 14. *C. ochroleuca.*
          Stromata effuse; on decaying seeds. 15. *C. seminicola.*
      Conidial phase uncertain; on bark. 16. *C. grammicospora.*
  Stromata hard, tubercular; perithecia scattered over their surface. 17. *C. tuberculariformis.*

1. **Creonectria purpurea** (L.) Seaver, Mycologia **1**: 184. 1909.

Tremella purpurea L. Sp. Pl. 1158. 1753.
Sphaeria tremelloides Weigel, Obs. Bot. 46. 1772.
Tubercularia vulgaris Tode, Fungi Meckl. 1: 18. 1790.
Sphaeria cinnabarina Tode, Fungi Meckl. **2**: 9. 1791.
Cucurbitaria cinnabarina Grev. Scot. Fl. Crypt. *pl. 135.* 1824.
Sphaeria Celastri Schw.; Fries, Elench. Fung. **2**: 81. 1828.
Sphaeria dematiosa Schw. Trans. Am. Phil. Soc. II. **4**: 205. 1832.
Nectria cinnabarina Fries, Summa Veg. Scand. 388. 1849.
Nectria Russellii Berk. & Curt.; Berk. Grevillea **4**: 45. 1875.
Nectria effuscata Berk. & Curt.; Berk. Grevillea **4**: 45. 1875.
Nectria nigrescens Cooke, Grevillea **7**: 50. 1878.
Nectria Sambuci Ellis & Ev. Proc. Acad. Phila. **1890**: 246. 1890.
Nectria Meliae Earle, Bull. Torrey Club **25**: 364. 1898.
Nectria purpurea Wilson & Seaver, Jour. Myc. 13: 51. 1907.

Stromata erumpent, tubercular, at first pinkish or yellowish-red, becoming darker with age, often brownish and occasionally quite black, 1–2 mm. in diameter and 1–2 mm. high; conidiophores 50–100 μ long with short lateral branches on which the conidia are borne; conidia 4–6 × 2 μ, ellipsoid, hyaline; perithecia springing at first from the base of the stroma, which at maturity is concealed by the cespitose clusters of perithecia; individual perithecia nearly globose, with the ostiolum rather prominent, becoming slightly collapsed, at first bright cinnabar-red, becoming darker with age, often brown and occasionally black (when weathered), roughened externally with coarse granules 375–400 μ in diameter; asci clavate, 50–90 × 7–12 μ, 8-spored; spores mostly 2-seriate, ellipsoid, elongate, about 3 times as long as broad, with obtuse ends, 1-septate, hyaline, mostly a little curved, 12–20 × 4–6 μ; paraphyses very delicate.

On bark of various kinds of deciduous trees and shrubs, of many different families.

TYPE LOCALITY: Europe.

DISTRIBUTION: Maine to California and South Carolina, probably common throughout North America; also in Europe.

ILLUSTRATIONS: Bull. Herb. Fr. *pl. 284;* Tode, Fungi Meckl. *pl. 9, f. 68;* Tul. Fung. Carp. 3: *pl. 12;* E. & P. Nat. Pfl. 1¹: *f. 239, A–D;* Rab. Krypt. Fl. 1²: 87, *f. 1–3.*
EXSICCATI: Ellis, Fungi Nova-Caesar. *68;* Ellis, N. Am. Fungi *468;* Ellis & Ev. Fungi Columb. *115;* Barth. Fungi Columb. *2334, 2847, 3015, 3113, 3114;* Rav. Fungi Am. *339;* Wilson & Seaver, Ascom. *17.*

2. **Creonectria verrucosa** (Schw.) Seaver, Mycologia **1**: 185. 1909.

Sphaeria verrucosa Schw. Trans. Am. Phil. Soc. II. **4**: 204. 1832.
Nectria verrucosa Sacc. Syll. Fung. **2**: 509. 1883.

Stromata fleshy, concave or convex, scarcely rising above the surface of the substratum; perithecia cespitose in clusters 1–2 mm. in diameter, erumpent through the outer bark; individual perithecia nearly globose, dull-red, very rough externally with coarse granules, 250–300 μ in diameter; asci cylindric to clavate, 50–65 $\times$ 5–6 μ, 8-spored; spores 2-seriate, 1-septate, ellipsoid, with obtuse ends, straight or a little curved, usually not constricted, 12–16 $\times$ 4 μ.

On dead branches of *Morus, Sassafras,* and *Melia.*
TYPE LOCALITY: Bethlehem, Pennsylvania.
DISTRIBUTION: Delaware to North Dakota and Alabama.
ILLUSTRATION: Ellis & Ev. N. Am. Pyrenom. *pl. 12, f. 13–19.*
EXSICCATI: Ellis & Ev. N. Am. Fungi *2371;* Barth. Fungi Columb. *3115, 3116.*

3. **Creonectria atrofusca** (Schw.) Seaver, Mycologia **1**: 186. 1909.

Sphaeria atrofusca Schw. Trans. Am. Phil. Soc. II. **4**: 206. 1832.
Nectria atrofusca Ellis & Ev. Jour. Myc. **1**: 140. 1885.

Stromata fleshy or subfleshy, rather dark-colored, erumpent but not rising much above the surface of the bark; perithecia in cespitose clusters on the stroma, the clusters variable in size, averaging 1–2 mm.; individual perithecia subglobose with a prominent papilliform ostiolum, mostly collapsing when dry, dark-colored, nearly black in dried specimens, brownish-black with transmitted light, small, mostly less than 200 μ in diameter; asci subcylindric, 45–50 $\times$ 7 μ, 8-spored; spores partially 2-seriate above, 1-seriate below, hyaline, 1-septate, slightly constricted at the septum, subfusoid with the ends slightly narrowed.

On dead branches of *Staphylea trifolia* L.
TYPE LOCALITY: Bethlehem, Pennsylvania.
DISTRIBUTION: Pennsylvania.
EXSICCATI: Ellis & Ev. N. Am. Fungi *1547.*

4. **Creonectria Coryli** (Fuckel) Seaver, Mycologia **1**: 186. 1909.

Nectria Coryli Fuckel, Symb. Myc. 180. 1869.
Chilonectria Coryli Ellis & Ev. N. Am. Pyrenom. 116. 1892.

Perithecia cespitose on an erumpent stroma, globose, smooth, at first bright-red, becoming blackish, entirely black in weathered specimens, collapsing, becoming pezizoid; asci clavate, 85–100 $\times$ 10–12 μ, 8-spored but with spores often obscured by numerous, allantoid spore-like bodies which are present in the ascus; spores fusoid, 1-septate, with a short curved appendage at each end, 10–15 $\times$ 2.5–3 μ.

On branches of various deciduous trees and shrubs.
TYPE LOCALITY: Europe.
DISTRIBUTION: Ontario to New Jersey and North Dakota; also in Europe.
EXSICCATI: Ellis, N. Am. Fungi *159.*

5. **Creonectria pithoides** (Ellis & Ev.) Seaver, Mycologia **1**: 187. 1909.

Nectria pithoides Ellis & Ev. Proc. Acad. Phila. **1890**: 247. 1890.
?*Nectria cytisporina* Ellis & Ev. Erythea **1**: 197. 1893.

Stromata erumpent, yellowish; perithecia seated on the stroma in dense clusters 1.5–2.5 mm. in diameter; individual perithecia bright-red, collapsing so as to become truncate, resembling the head of a barrel with the ostiolum appearing as a light translucent dot in the center, 200–250 μ in diameter; asci cylindric, 70–80 $\times$ 5 μ, 8-spored; spores ellipsoid, 1-septate, with an oil-drop in each cell, hyaline, 6–10 $\times$ 3–4 μ.

On bark of dead alders.
TYPE LOCALITY: British Columbia.
DISTRIBUTION: British Columbia and Washington.
ILLUSTRATION: Mycologia **1**: *pl. 13, f. 3, 4.*
EXSICCATI: Ellis & Ev. N. Am. Fungi *2750* (cotype); Barth. Fungi Columb. *3112.*

6. **Creonectria rubicarpa** (Cooke) Seaver, Mycologia 1: 187. 1909.

Nectria rubicarpa Cooke, Grevillea 7: 50. 1878.

Perithecia cespitose in small, dense clusters, 1–2 mm. in diameter, minutely roughened, bright-red becoming darker with age, collapsing and becoming deeply pezizoid; asci cylindric to clavate, 55-60 × 6 μ, 8-spored; spores 1-seriate or partially 2-seriate above, ellipsoid, hyaline, 1-septate, 10–13 × 4–4.5 μ, scarcely constricted.

On dead limbs of *Gelsemium* and stems of *Ilex*.
TYPE LOCALITY: Aiken, South Carolina.
DISTRIBUTION: New Jersey to Alabama.
ILLUSTRATION: Mycologia 1: *pl. 13, f. 11, 12.*
EXSICCATI: Ellis, N. Am. Fungi *80;* Rav. Fungi Am. *341.*

7. **Creonectria mammoidea** (Phill. & Plow.) Seaver, Mycologia 1: 188. 1909.

Nectria mammoidea Phill. & Plow. Grevillea 3: 126. 1875.

Perithecia cespitose in clusters 1–3 mm. in diameter, or more or less scattered, surrounding a brownish stroma, very large, averaging about 500 μ in diameter, ovoid, tapering above into a large, obtuse ostiolum, bright-red, with ostiolum often darker, shining, entire; asci cylindric or slightly clavate, 100 × 7–8 μ, 8-spored; spores 1-seriate or partially 2-seriate above, oblique, subfusoid, 1-septate, usually slightly unequal-sided, 18–20 × 6–7 μ.

On wood and bark.
TYPE LOCALITY: England.
DISTRIBUTION: Ontario to New Jersey; also in Europe.
ILLUSTRATION: Grevillea 3: *pl. 42, f. 5.*

8. **Creonectria coccinea** (Pers.) Seaver, Mycologia 1: 188. 1909.

?*Sphaeria decidua* Tode, Fungi Meckl. 2: 31. 1791.
Sphaeria coccinea Pers. Ic. Descr. Fung. 47. 1800.
Nectria coccinea Fries, Summa Veg. Scand. 388. 1849.
Nectria ditissima Tul. Fung. Carp. 3: 73. 1865.

Stromata yellowish, springing from the crevices of bark in irregular patches; perithecia cespitose in dense, irregular clusters often several millimeters in diameter, or occasionally scattered around the stroma; individual perithecia ovoid with a prominent ostiolum, bright-red, almost scarlet (color somewhat variable), smooth or very minutely roughened, mostly entire, about 300 μ in diameter; asci cylindric or clavate, 80–90 × 8–10 μ, 8-spored; spores 1-seriate, fusoid, 12–16 × 4–5 μ.

On bark or more rarely on decorticated wood of various deciduous trees and shrubs.
TYPE LOCALITY: Europe.
DISTRIBUTION: Vermont to North Dakota and West Virginia, probably extending over a much wider range; also in Europe.
ILLUSTRATION: Pers. Ic. Descr. Fung. *pl. 12, f. 2.*
EXSICCATI: Ellis, N. Am. Fungi *161, 618;* Ellis & Ev. Fungi Columb. *2043;* Barth. Fungi Columb. *2238.*

9. **Creonectria nipigonensis** (Ellis & Ev.) Seaver, Mycologia 1: 189. 1909.

Nectria nipigonensis Ellis & Ev. Proc. Acad. Phila. 1893: 129. 1893.

Stromata depressed, yellowish, about 0.5 mm. in diameter; conidia minute, allantoid, 3–4 × 1 μ; perithecia cespitose, nearly globose, about 250 μ in diameter, reddish, becoming darker with age, finally collapsing at the apex, smooth; asci cylindric, 50–55 × 6–7 μ, 8-spored; spores 1-seriate, fusoid or occasionally subellipsoid, 1-septate, usually not constricted at the septum, 10–12 × 5–6 μ.

On the erumpent disc of *Diatrypella*.
TYPE LOCALITY: Lake Nipigon, Ontario.
DISTRIBUTION: Known only from the type locality.

10. **Creonectria Cumbrivula** (Starb.) Seaver. Mycologia 2 : 194. 1910.

Nectria Cumbrivula Starb. Svensk. Vet.-Akad. Handl. 35, pl. 5f. 1902.
Nectria Cumbrivula Starb. Medelelia 1 : 49. 1905. Not [illegible]

[illegible] ... [illegible] ... [illegible] ... [

Tremellidium pulvinatum Speg. Anal. Soc. Cient. Argent. 12: 25. 1881.
Nectria compacta Ellis & Ev. Bull. Torrey Club 14: [illegible] 1887.
Nectria rhodogena Berk. Grevillea 21: 104. 1892.
Dialonectria illudens Cooke & Hark.; Cooke, Grevillea 12: 101. 1884.
Nectria illudens Sacc. Syll. Fung. 9: 963. 1891.
Nectria pallida Ellis & Ev. Proc. Acad. Phila. 1894: 125. 1894.

Stromata small, tubercular, 1–2 mm. in diameter, whitish to pink or flesh-colored, often floccose because of the erect, verticillate conidiophores; branches of the conidiophores ascending perpendicularly and each bearing at its summit a single conidium; conidia ellipsoid, hyaline, 5–8 × 3–4 μ; other granular within; perithecia occurring in dense clusters ranging from 3–5 to many perithecia, the clusters very variable in form; individual perithecia small, nearly globose with a prominent papilliform ostiolum, smooth or only minutely rough, at first flesh-colored, often dry becoming pale-yellow or almost white, 200–300 μ in diameter, entire or occasionally collapsing, becoming pervious and then 5- or 6–7- or 8-sported; spores 2-seriate above, 1-seriate below or often irregularly inordinate, fusoid with ends acute, a little constricted at the septum, hyaline, 8–12 × 3–4 μ.

On bark of various kinds of trees; also on *Yucca*, old stump of *Musa*, and tree fern.
TYPE LOCALITY: Bethlehem, Pennsylvania.
DISTRIBUTION: New York to California, Louisiana, and the West Indies.
ILLUSTRATIONS: Mycologia 1: *pl. 4, f. 3; pl. 5, f. 15, 16.*
EXSICCATI: Ellis N. Am. Fungi [illegible]; Rav. Fungi Am. [illegible]

15. **Creonectria seminicola** Seaver, Mycologia 1: 191. 1909.

Nectria seminicola Seaver, Mycologia 1: 21. 1909.

Conidial phase consisting of white mycelial growth covering the substratum, finally heaping up as various prints, forming pinkish stromata; conidiophores erect, much branched, with branches ascending perpendicularly, each bearing at its summit a single ellipsoid, hyaline conidium; conidia 5–7 × 2–3 μ, with 1 or 2 nuclei; perithecia appearing in dense clusters with the clusters often becoming confluent and covering the most of the exposed surface of the substratum; individual perithecia nearly globose with a minute papilliform ostiolum, smooth or nearly so, 150–200 μ in diameter at first flesh-colored or orange fading in drying to pale-yellow or whitish; asci clavate, 40–50 μ long, 8-sported, spores mostly 1-seriate or irregularly inordinate, hyaline, 1-septate, a little constricted at the septum, 10–14 × 3–3.5 μ.

On partially decayed seeds of skunk cabbage, *Spathyema foetida* (L.) Raf., and also on seeds of cultivated beans partially decayed.
TYPE LOCALITY: New York City.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Mycologia 1: *pl. 2, f. 5–9; pl. 13, f. 5–7.*
EXSICCATI: Wilson & Seaver, Ascom. *61.*

16. **Creonectria grammicospora** (Ferd. & Winge) Seaver, Mycologia 1: 192. 1909.

Nectria grammicospora Ferd. & Winge, Bot. Tidssk. 29: 11. 1908.

Stromata pulvinate, erumpent; perithecia cespitose, the clusters variable in size; individual perithecia nearly globose, 150–250 μ in diameter, fleshy-membranaceous, pallid-colorous, slightly white-tomentose over the base, and there sometimes above subvertically 35–60 × 8.5–10 μ, 4-sported; spores 2-seriate above, 1-seriate below, ellipsoid, slightly unequal-sided, 12–14 × 5 μ.

On bark of branches.
TYPE LOCALITY: Island of St. Thomas, West Indies.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Bot. Tidssk. 29: *pl. 1, f. 3.*

17. **Creonectria tubercülariformis** (Rehm) Seaver, Mycologia 1: 193. 1909.

Hypocrea tubercularioides Rehm, Ber. Nat. Ver. Augsburg 26: [illegible] 1881.
Nectria tubercülariformis Wint. in Rab. Krypt. Fl. I²: 118. 1884.
Hypocreopsis tubercularioides Sacc. Syll. Fung. 9: 981. 1891.

Stromata tubercular, roundish or more often elongate, nearly smooth or in dried specimens often longitudinally striate, pinkish or rose-colored, becoming dull-red with age

perithecia superficial, solitary or more or less crowded, small, averaging about 200 μ in diameter, smooth or nearly so, globose, with a rather prominent papilliform ostiolum, becoming slightly collapsed from above when dry; asci clavate, 40–50 × 6–7 μ, 8-spored; spores 1–2-seriate, mostly 2-seriate above and 1-seriate below, usually a little broader above, fusoid, 1-septate and a little constricted at the septum, with small oil-drops in each cell, 8–11 × 3–4 μ.

On dead stems of *Urtica* sp., more rarely on old branches and dung.
TYPE LOCALITY: Germany.
DISTRIBUTION: North Dakota; also in Europe.
ILLUSTRATION: Mycologia 1: *pl. 13, f. 8–10.*
EXSICCATI: Wilson & Seaver, Ascom. *79.*

16. **MACBRIDELLA** Seaver, Mycologia 1: 195. 1909.

Perithecia in dense, cespitose clusters seated on a stroma, bright-colored, reddish or yellowish, becoming darker with age, globose to subcylindric, collapsing or entire; asci cylindric-clavate, 8-spored; spores ellipsoid or fusoid, 1-septate, at first hyaline, becoming smoky-brown to brownish-black.

Type species, *Nectria chactostroma* Ellis & Macbr.

Spores striately marked.
Spores 35–48 × 10–12 μ. 1. *M. striispora.*
Spores 15 × 5–6 μ. 2. *M. olivacea.*
Spores not striately marked. 3. *M. chaetostroma.*

1. **Macbridella striispora** (Ellis & Ev.) Seaver, Mycologia 1: 196. 1909.

Nectria striispora Ellis & Ev.; C. L. Smith, Bull. Lab. Nat. Hist. Univ. Iowa 2: 398. 1893.

Perithecia in irregular, dense, cespitose clusters as large as 5 mm. in diameter, consisting of 20–100 perithecia each; individual perithecia subcylindric, tapering above into an obtuse ostiolum which in mature specimens is quite prominent, at first covered with a yellowish-furfuraceous coat, finally amber; asci clavate, tapering above, about 100 × 15 μ; spores crowded in the ascus, large, fusoid, straight or curved, 1-septate, with several large oil-drops in each cell, slightly constricted at the septum, pale-brown, becoming striate, 35–48 × 10–12 μ; paraphyses indistinct.

On bark and rotten wood.
TYPE LOCALITY: Castillo Viejo, Nicaragua.
DISTRIBUTION: Known only from the type locality.
EXSICCATI: C. L. Smith, Central Am. Fungi *6.*

2. **Macbridella olivacea** Seaver, Mycologia 2: 178. 1910.

Stromata gregarious or crowded, tubercular in form, 0.5–1 mm. in diameter, externally floccose, pink; conidiophores verticillately branched, about 150 μ in length with a chain of conidia at the end of each branch; conidia ellipsoid, simple, about 3 × 5 μ; perithecial clusters gregarious or crowded, each containing from 15–25 perithecia; individual perithecia at first covered with coarse, olivaceous granules, becoming smooth or minutely roughened, dark-colored, brownish-olivaceous, ovoid; asci cylindric or slightly clavate, about 100 μ long; spores obliquely 1-seriate or slightly crowded in the upper part of the ascus, at first fusiform and hyaline, with several oil-drops, and surrounded by a hyaline membrane, becoming 1-septate, at maturity fusoid or subellipsoid, 1-septate, and slightly constricted at the septum, olivaceous to brown, with an oil-drop in each cell, externally becoming roughened; roughenings appearing as coarse, longitudinal or spirally arranged striations, 15 × 5–6 μ.

On palm stems.
TYPE LOCALITY: Motzorongo, Veracruz.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia 2: *pl. 30, f. 6–13.*

3. **Macbridella chaetostroma** (Ellis & Macbr.) Seaver, Mycologia 1: 195. 1909.

Nectria chaetostroma Ellis & Macbr.; Ellis & Ev. Bull. Lab. Nat. Hist. Univ. Iowa 4: 70. 1896.

Perithecia in dense irregular clusters 1–5 mm. in diameter, clusters often elongate; individual perithecia globose or subglobose, dark reddish-brown, becoming brownish-black,

slightly collapsing, becoming pezizoid, surrounded at the base with a growth of brown, crooked, septate hairs, 100–200 μ long and 3–4 μ thick; asci clavate, 75–80 $\times$ 10 μ; spores 2-seriate or rather irregularly crowded in the ascus, ellipsoid, straight or curved, 1-septate, slightly constricted, with a distinct oil-drop in each cell, pale-brown, 18–20 $\times$ 7–8.5 μ; paraphyses filiform.

On bark of an undetermined tree or shrub.
TYPE LOCALITY: Ometépe, Nicaragua.
DISTRIBUTION: Known only from the type locality.

17. GIBBERELLA Sacc. Michelia 1: 43. 1877.

Stromata (*Fusarium*) tubercular or more or less effuse; perithecia cespitose or occasionally scattered on or surrounding the stromata; asci clavate, 8-spored; spores fusoid, 3–many-septate, hyaline.

Type species, *Sphaeria pulicaris* Fries.

1. Gibberella pulicaris (Fries) Sacc. Michelia 1: 43. 1877.

Sphaeria pulicaris Fries, in Kunze & Schmidt, Myk. Hefte 2: 37. 1823.
Sphaeria Saubinetii Dur. & Mont. in Dur. Expl. Sci. Algér. Bot. 1: 479. 1849.
Gibbera pulicaris Fries, Summa Veg. Scand. 402. 1849.
Gibbera Saubinetii Mont. Syll. Crypt. 252. 1856.
Botryosphaeria pulicaris Ces. & De-Not. Comm. Critt. Ital. 1: 212. 1863.
Gibberella Saubinetii Sacc. Michelia 1: 513. 1879.

Perithecia in cespitose clusters 0.5–1 mm. in diameter, seated on a stroma or occasionally more or less scattered around it, ovoid, with a rather prominent ostiolum, minutely rough, finally collapsing, black to the unaided eye, blue with transmitted light; asci clavate, tapering above, 50–55 $\times$ 10 μ; spores crowded in the ascus, fusiform, straight or curved, 3-septate, hyaline or slightly yellowish, 18–20 $\times$ 5–6 μ.

On cornstalks, herbaceous stems, and bark of trees and shrubs.
TYPE LOCALITY: Europe.
DISTRIBUTION: New Jersey to North Dakota, Kansas, and West Virginia; also in Europe.
ILLUSTRATIONS: Ellis & Ev. N. Am. Pyrenom. *pl. 13, f. 1–6*; E. & P. Nat. Pfl. 1^1: *f. 240, G–J*.
EXSICCATI: Ellis, N. Am. Fungi *81*; Wilson & Seaver, Ascom. *32*.

DOUBTFUL SPECIES

Gibberella acervalis (Moug.) Sacc. Michelia 1: 318. 1878. *Sphaeria acervalis* Moug.; Fries, Elench. Fung. 2: 83. 1828.

Gibberella cyanogena (Desmaz.) Sacc. Syll. Fung. 2: 555. 1883. *Sphaeria cyanogena* Desmaz. Ann. Sci. Nat. III. 10: 352. 1848.

Gibberella "ficini" (Cooke & Hark.) Ellis & Ev. N. Am. Pyrenom. 120. 1892. *Gibbera "ficini"* Cooke & Hark. Grevillea 9: 87. 1881.

18. SCOLECONECTRIA Seaver, Mycologia 1: 197. 1909.

Stromata subglobose, tubercular or depressed; perithecia superficial on or surrounding the stroma, in dense clusters or more or less evenly scattered; asci 2–8-spored, cylindric to clavate; spores 3–many-septate, fusoid to subfiliform, hyaline or subhyaline.

Type species, *Ophionectria scolecospora* Bref.

Spores filiform or subfiliform, very long.
  On dead branches of *Pinus*; spores 40–50 $\times$ 2.5–3 μ. — 1. *S. scolecospora.*
  On scale-insects; spores 100–120 $\times$ 6–7 μ. — 2. *S. coccicola.*
Spores fusoid or subellipsoid, comparatively short.
  Stromata prominent, tubercular, 1–2 mm. high. — 3. *S. canadensis.*
  Stromata depressed, inconspicuous.
    Asci 8-spored.
      Spores subellipsoid, curved. — 4. *S. polythalama.*
      Spores fusiform or subfusiform.
        Perithecia red; ascospores accompanied by smaller spore-like bodies. — 5. *S. balsamea.*
        Perithecia yellowish to brownish; spore-like bodies absent. — 6. *S. Atkinsonii.*
    Asci 4-spored. — 7. *S. tetraspora.*

1. **Scoleconectria scolecospora** (Bref.) Seaver, Mycologia **1**: 198. 1909.

? *Nectria cylindrospora* Sollm. Bot. Zeit. **22**: 265. 1864.
Ophionectria scolecospora Bref. Unters. Gesammt. Myk. **10**: 178. 1891.
Chilonectria Cucurbitula Ellis & Ev. N. Am. Pyrenom. 116, excl. syn. 1892.

Perithecial clusters quite regular, rounded, composed of numerous, densely cespitose perithecia; individual perithecia dull-red, at first slightly furfuraceous, becoming quite smooth, nearly globose, finally collapsing, becoming pezizoid; asci clavate to cylindric, 60–75 × 8–10 μ, filled with numerous spore-like bodies, often obscuring the long cylindric spores; spores usually more or less curved, many-septate, with the septa transverse or extending irregularly, delicate, 40–50 × 2.5–3 μ.

On branches of various species of *Pinus*.
TYPE LOCALITY: Germany.
DISTRIBUTION: New Jersey to Maryland and California; also in Europe.
ILLUSTRATIONS: Bref. Unters. Gesammt. Myk. **10**: *pl. 5, f. 45;* Ellis & Ev. N. Am. Pyrenom. *pl. 12, f. 9–12;* E. & P. Nat. Pfl. 1¹: *f. 241, D.*
EXSICCATI: Ellis & Ev. N. Am. Fungi *1551;* C. Baker, Pacif. Slope Fungi *68;* Ellis & Ev. Fungi Columb. *1433.*

2. **Scoleconectria coccicola** (Ellis & Ev.) Seaver, Mycologia **1**: 198. 1909.

Nectria coccicola Ellis & Ev. Jour. Myc. **2**: 39. 1886.
Dialonectria coccicola Ellis & Ev. Jour. Myc. **2**: 137. 1886.
Ophionectria coccicola Berl. & Vogl. in Sacc. Syll. Fung. Addit. 218. 1886.

Stromata rounded, more or less prominent, whitish; conidia borne in clusters of 3–5, large, broad at the base, tapering into a bristle-like apex, 15–20-septate, 100–150 × 7–7.5 μ with a distinct stem-like base; perithecia in cespitose clusters, nearly globose or a little longer than broad, reddish, becoming dark-brownish, minutely roughened, at first clothed with a few hyaline hairs, then naked, 300–500 μ in diameter; asci cylindric, tapering below into a stem-like base, 150–200 × 20 μ; spores clavate or subcylindric, 100–120 × 6–7 μ at the base, 15–20-septate, hyaline.

On dead scale-insects on the bark of living orange trees.
TYPE LOCALITY: Florida.
DISTRIBUTION: Florida and Cuba.
ILLUSTRATION: Bull. Fla. Exp. Sta. 94: 12, *f. 8–14.*

3. **Scoleconectria canadensis** (Ellis & Ev.) Seaver, Mycologia **1**: 199. 1909.

Nectria canadensis Ellis & Ev. Bull. Torrey Club **11**: 74. 1884.
Calonectria canadensis Berl. & Vogl. in Sacc. Syll. Fung. Addit. 212. 1886.

Stromata (*Tubercularia*) 1–2 mm. high, with an orange head and dull-red base; conidia minute, ellipsoid, hyaline, about 5 × 2 μ; perithecia springing in dense clusters from the base of the stroma, finally surrounding and often covering it; individual perithecia nearly globose, brick-red, 250–300 μ in diameter, at first tubercular and rough, finally becoming more or less smooth and slightly collapsing; asci clavate, 75–100 × 12–15 μ, 8-spored; spores crowded, ellipsoid, straight or curved, hyaline, 3-septate, 18–20 × 7 μ.

On the bark of *Ulmus* sp.
TYPE LOCALITY: Ottawa, Ontario.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ellis & Ev. N. Am. Pyrenom. *pl. 13, f. 7–14;* Mycologia **1**: *pl. 13, f. 13, 14.*
EXSICCATI: Ellis & Ev. N. Am. Fungi *2547;* Ellis & Ev. Fungi Columb. *226.*

4. **Scoleconectria polythalama** (Berk.) Seaver, Mycologia **1**: 200. 1909.

Nectria polythalama Berk. in Hook. f. Fl. Nov. Zeland. **2**: 203. 1855.
Nectria auriger Berk. & Rav.; Berk. Grevillea **4**: 46. 1875.
? *Nectria auriger flavitecta* Berk. & Curt.; Berk. Grevillea **4**: 46. 1875.
Calonectria polythalama Sacc. Michelia **1**: 308. 1878.
? *Calonectria flavitecta* Sacc. Michelia **1**: 309. 1878.

Perithecia erumpent in dense clusters 1–2 mm. long and about 1 mm. broad, seated on a yellowish stroma; individual perithecia subglobose, at first covered with a yellowish-green

coat of powdery material which finally disappears, leaving the perithecia of a dull-red color, finally collapsing; asci cylindric or clavate, 50–60 × 12–15 μ, 8-spored; spores crowded, ellipsoid, curved, yellowish-hyaline, 7-septate (mostly), 18–22 × 5 μ.

On *Chionanthus*, *Fraxinus*, and *Liquidambar*.
TYPE LOCALITY: New Zealand.
DISTRIBUTION: Virginia to Alabama.
ILLUSTRATION: Hook. f. Fl. Nov. Zeland. *pl. 106, f. 15.*
EXSICCATI: Ellis, Fungi Nova-Caesar. *69;* Ellis, N. Am. Fungi *79;* Rav. Fungi Car. **3**: *54*, **5**: *60.*

5. **Scoleconectria balsamea** (Cooke & Peck) Seaver, Mycologia **1**: 200. 1909.

Nectria balsamea Cooke & Peck (; Peck, Ann. Rep. N. Y. State Mus. **26**: 84; hyponym. 1874); Cooke, Grevillea **12**: 81. 1884.
? *Calonectria Cucurbitula* Sacc. Michelia **1**: 312. 1878.
Calonectria balsamea Sacc. Syll. Fung. **9**: 986. 1891.

Perithecial clusters small, 1–2 mm. in diameter, erumpent through the outer bark; individual perithecia nearly globose, smooth or minutely rough, red; in dried specimens dull brick-red, entirely collapsing, becoming pezizoid; asci cylindric to clavate, at first filled with numerous minute, spore-like bodies about 2 × 1 μ among which are several (2–4) true spores; spores fusiform, 5–6-septate, granular within, 15–25 × 4–5 μ.

On the branches of *Abies balsamea* (L.) Mill.
TYPE LOCALITY: North Elba, New York.
DISTRIBUTION: Newfoundland to Minnesota and New York.

6. **Scoleconectria Atkinsonii** (Rehm) Seaver, Mycologia **1**: 201. 1909.

Calonectria Atkinsonii Rehm, Ann. Myc. **2**: 178. 1904.

Perithecia erumpent in dense clusters 1–2 mm. in diameter; individual perithecia subconic, tapering into a prominent obtuse ostiolum, at first densely yellow-furfuraceous with the ostiolum bare and darker-colored, finally becoming bare and dark brownish-black; asci clavate with a subtruncate apex and slender stem-like base, 90–100 × 15–17 μ, 8-spored; spores fusoid or subfusiform, at first 1-septate, becoming 3-septate and constricted at the middle septum, mostly curved, hyaline or subhyaline, 27–33 × 8–9 μ; paraphyses filiform, 3 μ in diameter.

On dead branches of *Acer*, *Crataegus*, *Tilia*, etc.
TYPE LOCALITY: McKinney's Glen [New York].
DISTRIBUTION: Ontario and New York.
EXSICCATI: Ellis & Ev. Fungi Columb. *2006* (as *Calonectria chlorinella*).

7. **Scoleconectria tetraspora** Seaver, sp. nov.

Perithecia in dense, cespitose clusters 0.5–2 mm. in diameter, seated on an indistinct stroma, superficial on the surface of the substratum, globose or subglobose, often with the ostiolum slightly collapsed or entire, covered externally with conspicuous, bran-like, whitish outgrowths, giving the plants a decidedly verrucose appearance, pale-orange, about 250–300 μ in diameter; asci broadly clavate, 75–80 × 10–12 μ, 4-spored; spores 1-seriate or crowded near the center of the ascus, with the ends overlapping, ellipsoid, or with the ends slightly narrowed, straight or a little curved, hyaline and more or less granular within, distinctly 3-septate, 25–28 × 8–10 μ.

Type collected on cacao trunks at Port Maria, Jamaica, November 14, 1902, *F. S. Earle 455* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

19. **ECHINODOTHIS** Atk. Bull. Torrey Club **21**: 224. 1894.

Dussiella Pat. Bull. Soc. Myc. Fr. **6**: 107, in part. 1890.

Stromata subfleshy or corky, light-colored, pulvinate to subglobose or irregular in form, often constricted at the base, sometimes entirely surrounding the host, consisting of several layers of different consistency; perithecia superficial, scattered, subcylindric, sessile, giving

an echinulate appearance to the stroma; asci cylindric, 8-spored; spores linear, septate, at length separating at the septa into short segments.

Type species, *Hypocrea tuberiformis* Berk. & Rav.

1. **Echinodothis tuberiformis** (Berk. & Rav.) Atk. Bull. Torrey Club 21: 224. 1894.

Hypocrea tuberiformis Berk. & Rav.; Berk. Grevillea 4: 13. 1875.
Hypocrella tuberiformis Atk. Bot. Gaz. 16: 284. 1891.

Stromata subglobose, 1 cm. or more in diameter, entire, lobed, or divided, seated upon the reed or upon the leaf-sheath and fastened by a whitish mycelium consisting of radiating threads which are sometimes tinged yellowish-brown; substance leathery or corky, consisting of three layers, an inner layer white to pinkish, an intermediate layer light-ochraceous and an outer layer cinnamon; stroma externally dark-brownish becoming black; conidiophores needle-shaped; conidia ovoid to fusoid, 3–4 × 7–10 μ; perithecia entirely superficial in small clusters or evenly distributed over the exposed surface of the stroma, subconic in form, giving the whole stroma a spiny appearance, clothed except the apex with a dense covering of minute threads which are at first whitish becoming cinnamon-colored, the naked apex becoming black, about 0.3 × 1 mm.; asci cylindric, with a swelling at the apex, very large, 475–750 × 14–20 μ; spores nearly as long as the ascus, hyaline or slightly yellowish, many-septate, the joints 15 × 4–5 μ.

On stems of *Arundinaria*.
TYPE LOCALITY: South Carolina.
DISTRIBUTION: South Carolina to Alabama.
ILLUSTRATIONS: Bot. Gaz. 16: *pl. 25*; Mycologia 1: *pl. 13, f. 15*.
EXSICCATI: Rav. Fungi Am. *733*.

20. THYRONECTRIA Sacc. Grevillea 4: 21. 1875.

Pleonectria Sacc. Nuovo Giorn. Bot. Ital. 8: 178. 1876.

Stromata erumpent-superficial or subimmersed, with the perithecia in dense, cespitose clusters; individual perithecia subglobose, smooth or rough, often clothed with a yellowish-green, furfuraceous coat which sometimes disappears with age, leaving the perithecia dark-colored, red to brownish, collapsing or entire; asci 8-spored, cylindric to clavate; spores hyaline, when mature many-septate and muriform, often accompanied by minute spore-like bodies which are much smaller in size.

Type species, *Thyronectria patavina* Sacc.

Spores ellipsoid, 2 times as long as broad.
  Perithecia subimmersed, greenish. — 1. *T. pyrrhochlora*.
  Perithecia erumpent-superficial, not green.
    Perithecia dark-brownish; spores small, 10–15 × 7–9 μ. — 2. *T. denigrata*.
    Perithecia reddish; spores large, 16–30 μ long.
      Spores 20–30 × 10–12 μ; on bark of *Hicoria*. — 3. *T. missouriensis*.
      Spores 16–20 × 7–8 μ; on *Ribes*. — 4. *T. berolinensis*.
Spores subellipsoid, accompanied by minute spore-like bodies. — 5. *T. sphaerospora*.

1. **Thyronectria pyrrhochlora** (Auersw.) Sacc. Michelia 1: 325. 1878.

Nectria pyrrhochlora Auersw.; Rab. Fungi Eur. *1234*. 1869.—Hedwigia 8: 88. 1869.
Valsa Xanthoxyli Peck, Ann. Rep. N. Y. State Mus. 31: 49. 1879.
Pseudovalsa Xanthoxyli Sacc. Syll. Fung. 2: 137. 1883.
Fenestella Xanthoxyli Sacc. Syll. Fung. 2: 332. 1883.
Pleonectria pyrrhochlora Wint. in Rab. Krypt. Fl. 1²: 108. 1884.
Thyronectria virens Hark.; Ellis & Ev. N. Am. Pyrenom. 92. 1892.
Thryonectria Xanthoxyli Ellis & Ev. N. Am. Pyrenom. 92. 1892.
? *Thyronectria sambucina* Ellis & Ev. Bull. Torrey Club 24: 458. 1897.

Perithecia cespitose in rounded or elongate clusters, seated on the inner bark, finally bursting through the epidermis, becoming more or less superficial, often so densely cespitose that the perithecia appear to be united, at first covered with a thin olive-green tomentum or powdery material, with the ostiolum protruding and bare, the entire perithecium becoming more or less bare with age, about 300 μ in diameter; asci clavate, 100–

125 μ long; spores crowded, ellipsoid, straight or curved, hyaline or slightly yellowish, many-septate and muriform, 18–24 × 8–12 μ.

On branches of *Acer*, *Fraxinus*, and *Xanthoxylum*.
TYPE LOCALITY: Europe.
DISTRIBUTION: New York to Ontario and Ohio; Colorado (?); also in Europe.
EXSICCATI: Ellis & Ev. N. Am. Fungi *2546*, *3310*.

2. **Thyronectria denigrata** (Wint.) Seaver, Mycologia **1**: 204. 1909.

Pleonectria denigrata Wint. Bull. Torrey Club **10**: 49. 1883.

Perithecia erumpent in very dense, large, rounded clusters 2–5 mm. in diameter, seated on a brownish stroma; individual perithecia nearly globose, minutely roughened, dark-brownish, with a prominent, black, shining ostiolum, finally becoming black, 350–450 μ in diameter; asci cylindric, 50–70 × 8–10 μ; spores 1-seriate or crowded, short-ellipsoid, hyaline or slightly yellowish, 3–5-septate, becoming muriform, often a little constricted, 10–15 × 7–9 μ.

On branches of *Gleditsia triacanthos* L.
TYPE LOCALITY: Lexington, Kentucky.
DISTRIBUTION: Delaware to Kansas and Kentucky.
EXSICCATI: Ellis, N. Am. Fungi *1334*; Ellis & Ev. N. Am. Fungi *2372*.

3. **Thyronectria missouriensis** (Ellis & Ev.) Seaver, Mycologia **1**: 205. 1909.

Nectria missouriensis Ellis & Ev. Jour. Myc. **4**: 57. 1888.
Pleonectria missouriensis Sacc. Syll. Fung. **9**: 990. 1891.
Paranectria missouriensis Paz.; Rab.-Wint. Fungi Eur. *3748*. 1891.

Perithecia on the stroma in cespitose clusters of 6–20, dull-red, nearly globose, smooth or minutely rough, with a prominent ostiolum, usually not collapsing, 250–300 μ in diameter; asci clavate, 100–120 × 12–15 μ; spores crowded irregularly in the ascus, large, ellipsoid, straight or a little curved, hyaline or very slightly yellowish, 6–7-septate, with several longitudinal septa, dividing the spore into numerous small cells, 20–30 × 10–12 μ.

On bark of *Hicoria*.
TYPE LOCALITY: Concordia, Missouri.
DISTRIBUTION: Delaware to Missouri.

4. **Thyronectria berolinensis** (Sacc.) Seaver, Mycologia **1**: 205. 1909.

? *Nectria Ribis* Niessl, Verh. Nat. Ver. Brünn **3²**: 171. 1865.
Pleonectria berolinensis Sacc. Michelia **1**: 123. 1878.
Pleonectria Ribis P. Karst. Medd. Soc. Faun. Fl. Fenn. **5**: 42. 1879.

Perithecia erumpent in large cespitose clusters 1–3 mm. in diameter on a stroma which becomes indistinct in aged specimens; individual perithecia dull brick-red, becoming darker with age and often quite black, smooth or nearly so, entirely collapsing, becoming pezizoid with age, 250–300 μ in diameter; asci cylindric-clavate; spores 1-seriate, ellipsoid, 5–9-septate and muriform, hyaline or very slightly yellowish, 16–20 × 7–8 μ.

On dead branches of *Ribes* (wild and cultivated); also reported on *Prunus* sp.
TYPE LOCALITY: Germany.
DISTRIBUTION: Massachusetts to Montana and Colorado; also in Europe.
ILLUSTRATIONS: Ellis & Ev. N. Am. Pyrenom. *pl. 12, f. 7–8*.
EXSICCATI: Ellis, N. Am. Fungi *470*; Ellis & Ev. Fungi Columb. *26*, *470*; Wilson & Seaver, Ascom. *67*.

5. **Thyronectria sphaerospora** (Ellis & Ev.) Seaver, Mycologia **1**: 206. 1909.

Nectria sphaerospora Ellis & Ev.; Webber, Ann. Rep. Neb. Board Agr. **1889**: 193. S 1890.
Chilonectria crinigera Ellis & Ev. Proc. Acad. Phila. **1890**: 246. O 1890.

Perithecia cespitose on a tubercular stroma in small clusters of 3–12 each; individual perithecia subglobose, papillate, minutely rough, at first covered with a brownish, furfuraceous coat, finally bare and nearly black, slightly collapsing or entire, about 300–400 μ in diameter; asci clavate, about 50–70 × 12–15 μ, at first filled with numerous minute spore-like

bodies 2–3 × 1 μ, among which are the true spores; spores subglobose, mostly 1-seriate, becoming about 3-septate and muriform, 5–8 μ in diameter, surrounded by numerous spore-like bodies which appear like minute appendages.

On bark of *Fraxinus* and *Gleditsia*.
TYPE LOCALITY: Lincoln, Nebraska.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL SPECIES

Pleonectria fenestrata (Berk. & Curt.) Berl. & Vogl. in Sacc. Syll. Fung. Addit. 216. 1886. *Nectria fenestrata* Berk & Curt.; Cooke, Grevillea 12: 81. 1884.

21. THYRONECTROIDEA Seaver, Mycologia 1: 206. 1909.

Perithecia cespitose in erumpent clusters as in *Thyronectria;* asci clavate-cylindric, 8-spored; spores ellipsoid, many-septate, becoming muriform, at first hyaline, becoming dark-brown.

Type species, *Thyronectria chrysogramma* Ellis & Ev.

1. Thyronectroidea chrysogramma (Ellis & Ev.) Seaver, Mycologia 1: 206. 1909.

Thyronectria chrysogramma Ellis & Ev. Proc. Acad. Phila. 1890: 245. 1890.
Mattirolia chrysogramma Sacc. Syll. Fung. 9: 993. 1891.

Perithecia springing from below the epidermis in dense, cespitose clusters of 3–6 perithecia each; individual perithecia ovoid, 0.25–0.5 mm. in diameter, clothed with a greenish-yellow coat with the ostiolum bare and black; asci clavate-cylindric, 150–175 × 14–18 μ, 8-spored; spores 2-seriate, ellipsoid, mostly a little curved, 7–10-septate, with very faint, interrupted, longitudinal septa, at first hyaline, becoming quite dark-brown, 25–35 × 10–12 μ; paraphyses abundant.

On bark of *Ulmus americana* L.
TYPE LOCALITY: Manhattan, Kansas.
DISTRIBUTION: Ontario and New York to Kansas.

DOUBTFUL GENUS

CHILONECTRIA Sacc. Michelia 1: 279. 1878. The genus is characterized by the many-spored asci. All of the North American species referred to this genus have been found to contain in the asci, in addition to the many minute so-called spores, 2–8 large true spores, which are 1–many-septate. These species would therefore belong to *Nectria* or *Scoleconectria* according to the nature of the true spores.

Family 2. HYPOCREACEAE

By Fred Jay Seaver

Stromata conspicuous, seated directly on the substratum or springing from a sclerotium in the bodies of insects, fungi, or the ovaries and stems of plants, effuse without definite margin, patellate, substipitate, or erect. Perithecia partially to entirely immersed in the stroma, rarely subsuperficial (especially in aged specimens). Asci cylindric or clavate, 8–16-spored. Spores subglobose to filiform, simple or compound, hyaline or colored.

Stromata seated directly on the substratum, usually patellate or effuse, rarely clavate and erect. — Tribe 1. Hypocreeae.
Stromata springing from a sclerotium, usually erect and clavate, rarely depressed. — Tribe 2. Cordycipiteae.

Tribe 1. Hypocreeae. Stromata patellate or effuse, rarely clavate and erect, not springing from a sclerotium; perithecia partially to entirely immersed, papillate, with the necks often protruding; asci cylindric or clavate; spores subglobose, ellipsoid, fusiform, or filiform, simple or compound, hyaline or colored.

Asci 16-spored (by the separation of each original spore into 2 subglobose cells).
- Stromata patellate or effuse.
  - Spores hyaline. — 1. Hypocrea.
  - Spores becoming greenish or brownish. — 2. Chromocrea.
- Stromata clavate and vertical. — 3. Podostroma.

Asci 8-spored; spores ellipsoid, fusiform, or filiform.
- Stromata with stilbum-like outgrowths. — 4. Stilbocrea.
- Stromata without stilbum-like outgrowths.
  - Spores ellipsoid to fusiform.
    - Spores simple or doubtfully septate; stromata fleshy or cottony.
      - Spores colored. — 5. Chromocreopsis.
      - Spores hyaline.
        - Parasitic on leaves; stromata fleshy. — 6. Polystigma.
        - Not parasitic on leaves; stromata usually cottony.
          - Stromata scant; perithecia subsuperficial. — 7. Byssonectria.
          - Stromata profuse; perithecia immersed. — 8. Peckiella.
    - Spores 1-septate, fusiform or subfusiform.
      - Stromata cottony or subfleshy with ends acute and often apiculate. — 9. Hypomyces.
      - Stromata fleshy; spores ellipsoid with ends obtuse. — 10. Hypocreopsis.
    - Spores 3-septate. — 11. Broomella.
  - Spores filiform.
    - Perithecia enclosed in a membranaceous wall. — 12. Oomyces.
    - Perithecia not enclosed in a membranaceous wall.
      - Stromata very scant, cottony, white. — 13. Barya.
      - Stromata subfleshy, of variable color.
        - Stromata sheathing, on stems of grasses. — 14. Typhodium.
        - Stromata patellate or subpatellate. — 15. Hypocrella.

Tribe 2. Cordycipiteae. Sclerotia formed in the bodies of insects or in the stems or fruiting organs of plants, consisting of a more or less well-developed, often compact and hard growth of mycelial tissue; stromata developing from the sclerotia usually after a period of rest, erect and clavate or rarely pulvinate; perithecia immersed, or subsuperficial (especially in aged specimens); asci cylindric; spores filiform or subfiliform, simple or many-septate, often breaking into numerous segments, hyaline.

Sclerotia formed in the bodies of insects or fruiting organs of fungi. — 16. Cordyceps.
Sclerotia formed in the tissues of vascular plants.
- Sclerotia originating in the ovaries of plants; stromata long-stipitate. — 17. Spermoedia.
- Sclerotia formed in the stems or fruiting axes of plants; stromata short-stipitate or sessile. — 18. Balansia.

1. HYPOCREA Fries, Syst. Orbis Veg. 104. 1825.

Stromata subglobose to patellate, fleshy or subfleshy, usually with an abrupt margin which in older specimens is more or less free, or irregular in outline and effuse without definite margin; perithecia entirely immersed, subglobose or ovoid with the necks slightly protrud-

ing; asci cylindric, originally with 8 spores, each of which separates into 2 subglobose or slightly cuboid cells, at maturity 16-spored; spores hyaline.

Type species, *Sphaeria rufa* Pers.

Stromata patellate, with definite outline, for the most part on wood and bark.
  Stromata dark-colored: dark-red, brown, or purplish-black.
    Stromata red or brown.
      Stromata reddish-brown or dark-brown. 1. *H. rufa.*
      Stromata wine-colored or dark-red. 2. *H. scutellaeformis.*
    Stromata purplish-black or olive.
      Stromata purplish, large, 0.5–1 cm. in diameter. 3. *H. lenta.*
      Stromata olivaceous, small, 1–2 mm. in diameter. 4. *H. minima.*
  Stromata bright-colored: whitish or bright-yellow.
    Stromata whitish. 5. *H. chionea.*
    Stromata bright-yellow. 6. *H. patella.*
Stromata effuse, spreading irregularly, with no definite outline.
  Occurring on wood and bark.
    Stromata very dark-olivaceous. 7. *H. olivacea.*
    Stromata bright lemon-yellow. 8. *H. sulphurea.*
  Occurring on fungi.
    Stromata bright-colored.
      Stromata orange, on *Tyromyces*. 9. *H. aurantiaca.*
      Stromata lemon-yellow, often fading. 10. *H. citrina.*
    Stromata pallid or whitish.
      On *Tyromyces*. 11. *H. pallida.*
      Forming rings on cups of *Cyathus*. 12. *H. latizonata.*
      On *Corticium*. 13. *H. corticiicola.*

1. **Hypocrea rufa** (Pers.) Fries, Summa Veg. Scand. 383. 1849.

Sphaeria rufa Pers. Obs. Myc. 1: 20. 1796.
? *Sphaeria Stereorum* Schw. Trans. Am. Phil. Soc. II. 4: 191. 1832.
? *Hypocrea Stereorum* Berk. & Curt.; Berk. Grevillea 4: 14. 1875.

Stromata gregarious, subhemispheric to patellate, occasionally confluent and more or less irregular but normally quite regular in form, 2 mm. to 1 cm. in diameter (mostly 2–5 mm.), externally brick-red, the margin in young specimens white, later becoming brown and in old specimens often free, becoming darker with age, the surface of the stroma roughened by the necks of the perithecia which protrude slightly; perithecia nearly globose, 175–200 μ in diameter; asci cylindric, 75–100 $\times$ 5 μ (spore-bearing part 60–75 μ); spores nearly globose, hyaline with a central oil-drop.

On wood and bark of various kinds and occasionally on old fungi.
TYPE LOCALITY: Europe.
DISTRIBUTION: Maine to North Dakota and South Carolina; probably occurs throughout North America; also in Europe.
ILLUSTRATIONS: Rab. Krypt. Fl. 1^2: *pl. 89, f. 1–3*; E. & P. Nat. Pfl. 1^1: *f. 243, A–D*; Mycologia 2: *pl. 20, f. 6–8*.
EXSICCATI: Ellis, N. Am. Fungi *157*; Ellis & Ev. N. Am. Fungi *1552*; Rav. Fungi Car. 5: *53*.

2. **Hypocrea scutellaeformis** Berk. & Rav.; Ellis & Ev. N. Am. Pyrenom. 80. 1892.

Stromata gregarious, patellate or subhemispheric, 0.5–1 mm. in diameter, with the margin free and slightly undulate, roughened slightly by the protruding necks of the perithecia, externally beautifully wine-colored, becoming darker with age, occasionally blackish, internally white; asci not known.

On the bark of *Acer rubrum* L.
TYPE LOCALITY: [South] Carolina.
DISTRIBUTION: Known only from the type locality.
EXSICCATI: Rav. Fungi Car. 4: *31*.

3. **Hypocrea lenta** (Tode) Berk. & Br. Jour. Linn. Soc. **14**: 112. 1873.

Sphaeria lenta Tode, Fungi Meckl. 2: 30. 1791.
Sphaeria Schweinitzii Fries, Elench. Fung. 2: 60. 1828.
Sphaeria rigens Fries, Elench. Fung. 2: 61. 1828.
Sphaeria sublobata Schw. Trans. Am. Phil. Soc. II. 4: 194. 1832.
Sphaeria contorta Schw. Trans. Am. Phil. Soc. II. 4: 194. 1832.
? *Hypoxylon Galeottianum* Kickx, Bull. Acad. Brux. 8^2: 77. 1841.
Hypocrea contorta Berk. & Curt.; Berk. Grevillea 4: 14. 1875.

Hypocrea rigens Sacc. Michelia **1**: 301. 1878.
Hypocrea Schweinitzii Sacc. Syll. Fung. **2**: 522. 1883.
Hypocrea sublobata Sacc. Syll. Fung. **2**: 535. 1883.
? *Hypocrea Galeotiana* Sacc. Syll. Fung. **9**: 978. 1891.

Stromata gregarious, 2 mm.–1 cm. in diameter, lens-shaped, the margin free, often becoming undulate, dark-colored externally becoming almost black with a shade of olive-green, white within, fleshy, becoming hard when dry, the surface roughened by the necks of the slightly protruding perithecia; perithecia subglobose, 150–175 μ in diameter; asci cylindric, 60–75 $\times$ 4–5 μ; spores subglobose with a large oil-drop, about 4 μ in diameter.

On wood and bark of various kinds.
TYPE LOCALITY: Mecklenburg, Germany.
DISTRIBUTION: Ontario to New Jersey, Louisiana, and California; also in Europe.
ILLUSTRATION: Tode, Fungi Meckl. *pl. 12, f. 102.*
EXSICCATI: Rav. Fungi Am. *642*; Ellis, N. Am. Fungi *156.*

4. **Hypocrea minima** Sacc. & Ellis; Sacc. Michelia **2**: 570. 1882.

Stromata scattered, superficial, patellate or subpatellate, the disc orbicular, very dark, almost black, scarcely 1 mm. in diameter, the surface roughened by the slightly protruding necks of the perithecia; asci cylindric, 60–75 $\times$ 4 μ; spores subglobose, hyaline, with a large oil-drop, about 4 μ in diameter.

On bark of *Magnolia.*
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: Known only from the type locality.

5. **Hypocrea chionea** Ellis & Ev. N. Am. Pyrenom. 79. 1892.

Stromata gregarious, subhemispheric, becoming patellate or subpatellate, fleshy, 1–2 mm. in diameter, white or very light-yellowish, the surface roughened by the slightly protruding necks of the perithecia; necks of the perithecia darker in color than the surrounding surface of the stroma, giving it a punctate appearance; asci cylindric, 50–60 $\times$ 4 μ; spores subglobose, with a central oil-drop, about 4 μ in diameter.

On decaying wood on the under side of a log, to which may be due its white color.
TYPE LOCALITY: London, Ontario.
DISTRIBUTION: Known only from the type locality.

6. **Hypocrea patella** Cooke & Peck; Peck, Ann. Rep. N. Y. State Mus. **29**: 57. 1878.

Stromata gregarious, patellate and regular in form, consisting of a whitish mycelium with a yellow center, becoming entirely bright-yellow, inclined to ochraceous, 1–2 mm. in diameter, the margin free, the surface punctate with the necks of the perithecia which protrude slightly, somewhat wrinkled when dry; asci cylindric, 60–75 $\times$ 4–5 μ; spores subglobose, hyaline.

On dead wood, especially on or surrounding other old sphaeriaceous fungi.
TYPE LOCALITY: Buffalo, New York.
DISTRIBUTION: New York to Louisiana.

7. **Hypocrea olivacea** Cooke & Ellis, Grevillea **6**: 92. 1878.

Hypocrea melaleuca Ellis & Ev. Proc. Acad. Phila. 1890: 245. 1890.

Stromata scattered, effuse and irregular in form, consisting at first of a patch of thin, white tomentum 0.5–1 cm. in diameter, becoming fleshy and of an olive shade, gradually becoming darker, at length nearly black and punctate with the slightly protruding necks of the perithecia; asci cylindric, 65–75 $\times$ 3–4 μ; spores hyaline, subglobose, 3 μ in diameter.

On pine boards, bark of *Sassafras*, and oak chips.
TYPE LOCALITY: [Newfield,] New Jersey.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Grevillea **6**: *pl. 100, f. 25.*

8. **Hypocrea sulphurea** (Schw.) Sacc. Syll. Fung. **2**: 535. 1883.

Sphaeria sulphurea Schw. Trans. Am. Phil. Soc. II. **4**: 193. 1832.

Stromata broadly effuse, forming irregular patches often several cm. in diameter, at first consisting of small tufts of white mycelium, the central part soon assuming a lemon-yellow

color, at maturity consisting of a bright lemon-yellow stroma with a pale, whitish margin, the color in dried specimens fairly constant, rarely slightly faded; perithecia entirely immersed and appearing as minute glands, slightly darker than the stroma; asci cylindric, 80–110 μ in length; spores about 4 × 5 μ, subglobose or commonly subcuboid from mutual pressure, granular within.

On bark of various kinds of trees and shrubs, *Acer*, *Alnus*, *Salix*, *Tilia*, etc., often on *Exidia glandulosa* (Bull.) Fries.
TYPE LOCALITY: Salem, North Carolina.
DISTRIBUTION: Connecticut to North Dakota, Alabama, and South Carolina.
EXSICCATI: Rav. Fungi Am. *641*; Rav. Fungi Car. **3**: *52*; Wilson & Seaver, Ascom. *57* (as *H. citrina*).

9. **Hypocrea aurantiaca** Peck, Ann. Rep. N. Y. State Mus. **51**: 295. 1898.

Stromata effuse, overspreading and entirely covering the hymenium of the host, cottony, deep-orange, paler near the margin, staining the host of a similar color; perithecia orange, thickly scattered or often crowded near the center of the stroma where the color is much darker, partially immersed in the substratum; asci cylindric; spores subglobose or subcuboid, 3–4 μ in diameter.

On *Tyromyces chioneus* (Fries) P. Karst.
TYPE LOCALITY: Gansevoort, New York.
DISTRIBUTION: Connecticut, New York, and New Jersey.

10. **Hypocrea citrina** (Pers.) Fries, Summa Veg. Scand. 383. 1849.

Sphaeria citrina Pers. Obs. Myc. **1**: 68. 1796.
? *Hypocrea lactea* Fries, Summa Veg. Scand. 383. 1849.
? *Hypocrea Karsteniana* Niessl; Rehm, Hedwigia **22**: 53. 1883.
? *Hypocrea fungicola* P. Karst.; Wint. in Rab. Krypt. Fl. **1**²: 141. 1884.

Stromata effuse, spreading irregularly often for several cm., occasionally interrupted, subfleshy, at first whitish, at length lemon-yellow with the margin cottony and lighter-colored, within whitish, the whole stroma becoming more or less faded with age, often subpallid; perithecia immersed, numerous, ovoid, yellowish; asci cylindric, 62–75 μ long; individual spores 3–4 μ in diameter, the lower of each pair slightly longer.

On soil, old fungi, and leaf-mould.
TYPE LOCALITY: Europe.
DISTRIBUTION: Connecticut to Wisconsin; also in Europe.
EXSICCATI: Shear, N. Y. Fungi *363*.

11. **Hypocrea pallida** Ellis & Ev. Jour. Myc. **2**: 65. 1886.

Stromata effuse, overspreading and entirely covering the hymenium of the host, cottony, at first pallid or pale-yellow or often with a slight tinge of rust-red, paler near the margin; perithecia thickly scattered and partially immersed in the substratum with the necks projecting, amber, darker than the substratum; asci cylindric, 50–75 × 4–5 μ; spores 3–4 μ in diameter, subglobose or slightly cuboid.

On the hymenium of species of *Tyromyces*.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: Ontario to New Jersey.

12. **Hypocrea latizonata** Peck; Ellis & Ev. N. Am. Pyrenom. 79. 1892.

Stromata consisting of a white subiculum which forms a band 5 mm. in diameter, entirely surrounding the outside of the cups of the host; perithecia thickly gregarious, immersed, with the necks protruding, darker-colored, brownish-black; asci cylindric, 60–75 μ long; individual spores 3–4 μ in diameter, the lower of each pair slightly longer.

On the outside of the cups of *Cyathus striatus* (Huds.) Hoffm.
TYPE LOCALITY: Ohio.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia **1**: *pl. 20, f. 9–10*.

13. **Hypocrea corticiicola** Ellis & Ev. N. Am. Pyrenom. 83. 1892.

Hypocrea corticioides Ellis & Ev. Jour. Myc. 1: 140. 1885. Not *H. corticioides* Berk. & Br. 1873.

Perithecia subglobose, pale, 75–100 μ in diameter, buried in the stroma and appearing

as minute, pale-yellow specks; asci cylindric to subclavate, 20–22 × 3.5 μ, sessile; spores 2-seriate, 1–1.5 μ in diameter.

On *Corticium scutellare* Berk. & Curt., on dead branches of *Magnolia* and *Quercus*.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Ellis & Ev. N. Am. Pyrenom. *pl. 11, f. 10, 11.*

DOUBTFUL AND EXCLUDED SPECIES

Hypocrea atramentosa Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 377. 1868. This is *Dothichloe atramentosa* (Berk. & Curt.) Atk.

Hypocrea cervina Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 376. 1868.

Hypocrea fibula De-Not. Giorn. Bot. Ital. **2**: 50. 1844.

Hypocrea laetior Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 376. 1868.

Hypocrea maculaeformis Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 376. 1868.

Hypocrea molliuscula (Schw.) Sacc. Syll. Fung. **2**: 536. 1883. *Sphaeria molliuscula* Schw.; Fries, Elench. Fung. **2**: 66. 1828.

Hypocrea ochroleuca Berk. & Rav.; Berk. Grevillea **4**: 14. 1875.

Hypocrea parasitans Berk. & Curt.; Berk. Grevillea **4**: 15. 1875. Not a *Hypocrea*.

Hypocrea Ravenelii Berk. Grevillea **4**: 14. 1875. A *Melogramma*.

Hypocrea Richardsoni Berk. & Mont.; Berk. Grevillea **4**: 14. 1875. Said to be a *Corticium*.

Hypocrea solenostoma Berk. & Rav.; Berk. Grevillea **4**: 14. 1875.

Hypocrea subviridis Berk. & Curt.; Berk. Grevillea **4**: 15. 1875.

Hypocrea virginiensis Ellis & Ev. Proc. Acad. Phila. **1893**: 442. 1894. A discomycete.

Hypocrea viridans Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 376. 1868.

Hypocrea viridi-rufa Berk. & Rav.; Berk. Grevillea **4**: 14. 1875. A *Hypoxylon*.

Hypocrea armeniaca Berk. & Curt., *Hypocrea insignis* Berk. & Curt., *Hypocrea polyporoidea* Berk. & Curt., *Hypocrea saccharina* Berk. & Curt. and *Hypocrea sterilior* (Schw.) (*Sphaeria sterilior* Schw.) were apparently based on imperfectly developed specimens.

2. CHROMOCREA Seaver, Mycologia **2**: 58. 1910.

Stromata patellate or subpatellate, whitish, yellowish, or reddish to greenish-black, more or less variable in a given species, fleshy; perithecia entirely immersed with necks only slightly prominent; asci cylindric, becoming 16-spored by the separation of each original spore into 2 subglobose cells; spores colored, greenish or brownish.

Type species, *Sphaeria gelatinosa* Tode.

Stromata yellowish to greenish-black.
  Stromata sessile, yellowish to green, then greenish-black. 1. *C. gelatinosa.*
  Stromata substipitate, yellow, not becoming green. 2. *C. substipitata.*
Stromata brick-red, entirely sessile. 3. *C. ceramica.*

1. Chromocrea gelatinosa (Tode) Seaver, Mycologia **2**: 58. 1910.

Sphaeria gelatinosa Tode, Fungi Meckl. **2**: 48. 1791.
Hypocrea gelatinosa Fries, Summa Veg. Scand. 383. 1849.
? *Hypocrea chlorospora* Berk. & Curt.; Berk. Grevillea **4**: 14. 1875.
? *Hypocrea chromosperma* Cooke & Peck; Peck, Ann. Rep. N. Y. State Mus. **29**: 57. 1878.
Hypocrea viridis Peck, Ann. Rep. N. Y. State Mus. **31**: 49. 1879.

Stromata patellate or subpatellate, fleshy, soft, becoming contracted and wrinkled when dry, at first bright lemon-yellow or yellowish-white becoming punctate with greenish dots, the necks of the perithecia filled with dark-colored spores, the entire stroma becoming darker with age, finally greenish or greenish-black, 1–4 mm. in diameter; perithecia entirely immersed with the necks slightly protruding and becoming rather prominent in dried specimens; asci cylindric; spores at first green, becoming brown, 5 μ in diameter.

On decaying wood of various kinds.
TYPE LOCALITY: Mecklenburg, Germany.
DISTRIBUTION: Maine to New Jersey and Wisconsin; also in Europe.
ILLUSTRATION: Tode, Fungi Meckl. *pl. 16, f. 123.*

2. **Chromocrea substipitata** Seaver, Mycologia **2**: 59. 1910.

Stromata gregarious or occasionally crowded, seated on a sulfur-yellow subiculum, discoid, fleshy, with the margin elevated from the substratum; young plants substipitate; stem short, about 1 mm. thick and 1–2 mm. high, gradually expanding upwards into the subpatellate stroma; stroma plane to a little concave or convex, dull-yellow, slightly punctate with the darker necks, 1–4 mm. in diameter; asci cylindric; spores becoming smoky-brown, $4 \times 5\,\mu$ in diameter.

On bark.
TYPE LOCALITY: [Indian River,] Nicaragua.
DISTRIBUTION: Known only from the type locality.

3. **Chromocrea ceramica** (Ellis & Ev.) Seaver, Mycologia **2**: 59. 1910.

Hypocrea ceramica Ellis & Ev. N. Am. Pyrenom. 85. 1892.

Stromata appearing first as specks of white tomentum, with a brick-red spot appearing in the center, finally becoming fleshy, rather thick and entirely brick-red without, and white within, subpatellate, convex, becoming wrinkled when dry, punctate with the necks of the slightly protruding perithecia, finally dusted over with the greenish spores; asci cylindric; spores about $4\,\mu$ in diameter, the lower of each pair a little larger than the upper.

On bark of decaying limb of *Juniperus*.
TYPE LOCALITY: Connecticut.
DISTRIBUTION: Known only from the type locality.

3. **PODOSTROMA** P. Karst. Hedwigia **31**: 294. 1892.

Hypocrea § *Podocrea* Sacc. Syll. Fung. **2**: 530. 1883.
Podocrea Lindau, in E. & P. Nat. Pfl. 1^1: 364. 1897.

Stromata stipitate or substipitate, erect, clavate or turbinate, fleshy, light-colored; perithecia immersed in the stroma; asci cylindric, becoming 16-spored by the separation of each original spore into 2 cells with the lower of each pair longer; spores globose, subglobose, or cuboid, hyaline.

Type species, *Podostroma leucopus* P. Karst.

Stromata clavate, yellow. 1. *P. alutaceum.*
Stromata turbinate, brown. 2. *P. brevipes.*

1. **Podostroma alutaceum** (Pers.) Atk. Bot. Gaz. **40**: 416. 1905.

Sphaeria alutacea Pers. in Holmsk. Coryph. 144. 1797.
Sphaeria clavata Sow. Engl. Fungi *pl. 159*. 1798.
Cordyceps alutacea Link, Handb. **3**: 347. 1833.
Hypocrea alutacea Tul. Fung. Carp. **1**: 62. 1861.
? *Podostroma leucopus* P. Karst. Hedwigia **31**: 294. 1892.
Podocrea alutacea Lindau, in E. & P. Nat. Pfl. 1^1: 364. 1897.
Hypocrea Lloydii Bres. in C. G. Lloyd, Myc. Notes 87. 1902.

Stromata vertical, consisting of a sterile stem and fertile, clavate or more or less irregular head; stem stout or slender and of variable length, the entire plant averaging 2–4 cm. high above the substratum, its length below the substratum variable, pale-yellow, whitish or tan-colored, the fertile head slightly darker; perithecia entirely immersed in the stroma or with their necks slightly protruding; asci cylindric or slightly clavate, $50–60 \times 4\,\mu$; spores subglobose or cuboid, about $4 \times 3\,\mu$.

On wood, decaying organic materials on the ground (and dead insects?).
TYPE LOCALITY: Europe.
DISTRIBUTION: New York to West Virginia and North Carolina; also in Europe.
ILLUSTRATIONS: Bot. Gaz. **40**: *pl. 14–16*; Berk. Outl. Brit. Fungol. *pl. 23, f. 6*; E. & P. Nat. Pfl. 1^1: *f. 243, F–H*; C. G. Lloyd, Myc. Notes 87, *f. 55*; Sow. Engl. Fungi *pl. 159*; Tul. Fung. Carp. **3**: *pl. 4, f. 1–6*; Mycologia **2**: *pl. 20, f. 16*.

2. **Podostroma brevipes** (Mont.) Seaver, Mycologia **2**: 61. 1910.

Cordyceps brevipes Mont. Syll. Crypt. 201. 1856.
? *Hypocrea Petersii* Berk. & Curt.; Berk. Grevillea **4**: 13. 1875.
Hypocrea brevipes Sacc. Michelia **1**: 304. 1878.

Stromata short-stipitate or substipitate, turbinate, 1–2 cm. in diameter, 0.5–1 cm. high, convex or often irregularly convolute above, brown externally, whitish within, papillate with the necks of the slightly protruding perithecia, often dusted over with a yellowish powder, consisting of the exuded spores, rugose, darker below, often blackish; perithecia covering the upper surface of the stroma, immersed, with the necks slightly protruding, subglobose; asci cylindric, 75 × 5 μ; spores 4–5 μ in diameter.

On old wood.
TYPE LOCALITY: Cayenne.
DISTRIBUTION: Ohio (and Alabama?); also in South America.

4. STILBOCREA Pat. Bull. Soc. Myc. Fr. 16: 186. 1901.

Stromata consisting of a hypocreoid base and several erect, stilbum-like outgrowths, fleshy, bright-colored; perithecia globose or ovoid, immersed or with the necks slightly protruding; asci 8-spored; spores hyaline or subhyaline, 1-septate, smooth or rough.

Type species, *Stilbocrea Dussii* Pat.

Spores 10–12 × 7 μ. 1. *S. hypocreoides.*
Spores 10.5–12.5 × 4.5–5.5 μ. 2. *S. intermedia.*

1. Stilbocrea hypocreoides (Kalchbr. & Cooke) Seaver, Mycologia 2: 62. 1910.

Sphaerostilbe hypocreoides Kalchbr. & Cooke, Grevillea 9: 26. 1880.

Stromata subpatellate or effuse, 2–5 mm. in diameter, the stilbum-like outgrowths clavate, shortly stipitate; conidia ellipsoid, 5 × 2 μ; perithecia immersed in the stroma or with the necks slightly prominent; asci cylindric; spores ellipsoid, 1-septate, hyaline, 10–12 × 7 μ, becoming slightly roughened externally.

On naked bark.
TYPE LOCALITY: South Africa.
DISTRIBUTION: Louisiana; also in Africa.
ILLUSTRATION: Grevillea 9: *pl. 136, f. 25.*

2. Stilbocrea intermedia (Ferd. & Winge) Seaver, Mycologia 2: 62. 1910.

?*Stilbocrea Dussii* Pat. Bull. Soc. Myc. Fr. 16: 186. 1901.
Sphaerostilbe intermedia Ferd. & Winge, Bot. Tidssk. 29: 12. 1908.
Nectria macrostoma Berk. & Curt.; Berk. Jour. Linn. Soc. 10: 378. 1868.
Stilbocrea macrostoma Höhnel, Sitz.-ber. Akad. Wien Math.-Nat. 118[1]: 1185. 1909.

Stromata fleshy, patellate or subpatellate, adnate to the substratum or with the margin free, when dry pale flesh-colored or yellowish-white, the stilbum-like outgrowths consisting of a stalk 1 mm. high and a subglobose head 400–600 μ in diameter; perithecia immersed but prominent, orange, ovoid or subglobose, 170–200 μ in diameter; asci cylindric, 70–85 × 5.5–7.5 μ; spores 1-seriate, ellipsoid, slightly unequal-sided, minutely roughened, 1-septate, scarcely constricted at the septum, 10.5–12.5 × 4.5–5.5 μ.

On bark of trees.
TYPE LOCALITY: Island of St. Thomas, West Indies.
DISTRIBUTION: Louisiana and West Indies.
ILLUSTRATIONS: Bot. Tidssk. 29: *pl. 1, f. 5;* Mycologia 2: *pl. 20, f. 19–20.*

5. CHROMOCREOPSIS Seaver, Mycologia 2: 63. 1910.

Stromata gregarious or scattered, tubercular and prominent or depressed, from 2 mm. to 1 cm. in diameter, bright-colored or dark, approaching black, fleshy or subfleshy, the surface slightly roughened and dotted with the slightly protruding necks of the perithecia filled with dark-colored spores; asci cylindric to clavate, 8-spored; spores ellipsoid to subcuboid, simple or septation indistinct, colored, brownish.

Type species, *Hypocrea cubispora* Ellis & Holway.

Stromata tubercular, large, bright-colored, yellow. 1. *C. cubispora.*
Stromata depressed, dark-colored, brown or blackish.
  Stromata clothed below with hairs. 2. *C. hirsuta.*
  Stromata naked, blackish. 3. *C. bicolor.*

1. **Chromocreopsis cubispora** (Ellis & Holway) Seaver, Mycologia **2**: 63. 1910.

Hypocrea cubispora Ellis & Holway, Jour. Myc. 1: 4. 1885.

Stromata scattered, tubercular, with a free margin, more or less contracted at the base, often becoming substipitate, 0.5–1 cm. in diameter and the same in height, at first very bright lemon-yellow and appearing pruinose, the color often changing in dried specimens, the surface scarcely wrinkled when dry, punctate with the slightly protruding necks of the perithecia filled with dark-colored spores; asci cylindric; spores subellipsoid or cuboid, smoky-brown, with 1 or 2 oil-drops, 5–7 × 4–5 μ, simple or occasionally obscurely 1-septate.

On decaying wood and bark.
TYPE LOCALITY: Decorah, Iowa.
DISTRIBUTION: Iowa; Jamaica.
ILLUSTRATION: Mycologia **2**: *pl. 20, f. 14–15.*

2. **Chromocreopsis hirsuta** (Ellis & Ev.) Seaver, Mycologia **2**: 64. 1910.

Hypocrea hirsuta Ellis & Ev.; C. L. Smith, Bull. Lab. Nat. Hist. Univ. Iowa **2**: 397. 1893.

Stromata gregarious or crowded, subhemispheric, coriaceous-carnose, 2–3 mm. in diameter, discoid, obsoletely margined, brown, yellowish-white within, contracted below, centrally attached, clothed with brown, bristle-like, septate hairs 100–200 × 4 μ, convex or plane above and slightly roughened by the necks of the perithecia; perithecia buried in the stroma, ovoid, about 5 mm. high; asci clavate-cylindric, swollen at the tip, 100 × 10 μ; spores navicular-oblong or unequally ellipsoid, brown, 7–8 × 3–3.5 μ.

On bark.
TYPE LOCALITY: Ometépe, Nicaragua.
DISTRIBUTION: Known only from the type locality.

3. **Chromocreopsis bicolor** (Ellis & Ev.) Seaver, Mycologia **2**: 64. 1910.

Hypocrea bicolor Ellis & Ev. Jour. Myc. **4**: 58. 1888.

Stromata gregarious or closely crowded, subpatellate or irregular from mutual pressure, slightly convex, 1–3 mm. in diameter, cinereous, becoming dull brownish-black, white within, the margin free, the upper surface wrinkled when dry and punctate with the necks of the perithecia; perithecia subglobose, about 0.5 mm. in diameter; asci cylindric, 70 × 5 μ; spores 1-seriate, ellipsoid, with 2 oil-drops, smoky-brown, 5 × 2–3 μ.

On decaying wood.
TYPE LOCALITY: Manhattan, Kansas.
DISTRIBUTION: Kansas and Missouri to Louisiana; Central America.

DOUBTFUL SPECIES

Hypocrea aurantio-cervina Ellis & Ev. Bull. Torrey Club **24**: 458. 1897. This appears to be a *Hypoxylon*.

6. POLYSTIGMA DC. Fl. Fr. **6**: 164. 1815.

Stromata fleshy or subfleshy, effuse, bright-colored, red or yellow, phyllogenous; perithecia immersed, prominent; asci 8-spored; spores ellipsoid, simple, hyaline.

Type species, *Xyloma rubra* Pers.

1. **Polystigma pusillum** Sydow, Ann. Myc. **2**: 167. 1904.

Stromata borne on both sides of the leaf, seated on indeterminate, yellowish spots, gregarious, minute, rounded or irregular, about 1 mm. in diameter, carneous-ochraceous, finally brownish; perithecia entirely immersed, few (1–5 mostly 1–3) in a stroma; ostiola not at all or only slightly protruding; asci cylindric-clavate with the apex rotundate, shortly stipitate, 45–66 × 10–15 μ; spores 1-seriate, ellipsoid, simple, hyaline, 10–12 × 3.5–5 μ.

On living leaves of *Andira excelsa* H.B.K.
TYPE LOCALITY: Escuintla, Guatemala.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL SPECIES

Polystigma rubra (Pers.) DC. Fl. Fr. 6: 164. 1815. *Xyloma rubra* Pers. Syn. Fung. 105. 1801. *Sphaeria rubra* Fries, Obs. Myc. 1: 172. 1815. This species has been reported from North America but its occurence is doubtful.

7. BYSSONECTRIA P. Karst. Medd. Soc. Faun. Fl. Fenn. 6: 6. 1881.

Perithecia seated in a scant, cottony stroma, subglobose or ovoid, vertically collapsing; asci cylindric, 8-spored; spores 1-seriate, often overlapping, ellipsoid, simple or occasionally pseudoseptate.

Type species, *Byssonectria abducens* P. Karst.

Stromata white; perithecia violaceous. 1. *B. violacea.*
Stromata yellow; perithecia yellowish-brown. 2. *B. chrysocoma*

1. Byssonectria violacea (J. C. Schmidt) Seaver, Mycologia 2: 65. 1910.

Sphaeria violacea J. C. Schmidt; Fries, Syst. Myc. 2: 441. 1823.
Hypomyces violaceus Tul. Ann. Sci. Nat. IV. 13: 14. 1860.

Stromata consisting of a thin white mycelial growth overspreading the substratum; perithecia thickly scattered, globose or subglobose, smooth or only minutely roughened, vertically collapsing, violaceous; asci cylindric; spores 1-seriate or with the ends slightly overlapping, ellipsoid, simple, granular within, 6–7 × 2–3 μ.

On slime-moulds (*Fuligo*).
TYPE LOCALITY: Europe.
DISTRIBUTION: Maine; also in Europe.

2. Byssonectria chrysocoma Cooke & Hark.; Cooke, Grevillea 12: 101. 1884.

Stromata effuse, byssoid, golden-yellow; perithecia minute, gregarious, obovoid, yellowish-brown, partially immersed in the stroma; asci clavate; spores 2-seriate, narrowly ellipsoid, simple or doubtfully septate, 10–13 × 3 μ.

On wood of *Eucalyptus*.
TYPE LOCALITY: California.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL SPECIES

Byssonectria Fimeti (Cooke) Sacc. Syll. Fung. 2: 457. 1883. *Nectria Fimeti* Cooke, Grevillea 11: 108. 1883. The species was described from material collected by Ravenel. Cotype material has been examined by the writer and the only ascomycete found was a discomycete. Whether the ascocarps were mistaken for perithecia it is difficult to state.

Byssonectria rosella Cooke & Hark.; Cooke, Grevillea 12: 101. 1884. Described from imperfect material.

Hypomyces exiguus Pat. Bull. Soc. Myc. Fr. 18: 180. 1902. On the fructification of *Stemonitis*. According to the author of the species this is closely related to *H. violaceus* Tul. No specimen has been seen.

8. PECKIELLA Sacc. Syll. Fung. 9: 944. 1891.

Hypomyces § *Peckiella* Sacc. Syll. Fung. 2: 472. 1883.

Stromata consisting of an effuse cottony subiculum, usually parasitic on other fungi; perithecia immersed or partially immersed in the subiculum; asci cylindric or clavate, 8-spored; spores fusiform, simple, smooth or externally roughened.

Type species, *Sphaeria viridis* Alb. & Schw.

Stromata dirty-greenish. 1. *P. viridis.*
Stromata not greenish.
  Spores comparatively small, 15–20 μ long.
    Stromata lemon-yellow. 2. *P. Camphorati.*
    Stromata white, becoming pallid or latericeous. 3. *P. lateritia.*

Spores comparatively large, 30 μ or more long.
Spores broadly fusiform, rough, apiculate.
Stromata dull-orange; on *Chanterel.* 4. *P. transformans.*
Stromata pallid. 5. *P. Banningiae.*
Spores narrowly fusiform, smooth, non-apiculate. 6. *P. Hymenii.*

1. Peckiella viridis (Alb. & Schw.) Sacc. Syll. Fung. 9: 944. 1891.

Sphaeria viridis Alb. & Schw. Consp. Fung. 8. 1805.
? *Hypomyces luteo-virens* Fries; Tul. Ann. Sci. Nat. IV. 13: 13. 1860.
Hypomyces viridis Berk. & Br. Ann. Mag. Nat. Hist. III. 15: 452. 1865.

Stromata effuse, covering the hymenium and stem of the host, dirty-greenish or greenish-black; perithecia thickly gregarious and immersed or partially immersed in the subiculum; asci cylindric or slightly clavate, 175–180 × 5–6 μ; spores 1-seriate or partially 2-seriate above, fusiform with a long apiculus at each end, 25–35 × 5 μ, becoming delicately verrucose, simple but occasionally appearing obscurely and irregularly septate.

On the hymenium and stem of agarics, *Lactaria* and *Russula*.
TYPE LOCALITY: Europe.
DISTRIBUTION: New England to North Carolina; also in Europe.
ILLUSTRATIONS: Alb. & Schw. Consp. Fung. *pl. 6, f. 8;* Grevillea **8**: *pl. 130, f. 1;* **11**: *pl. 152, f. 2;* Mycologia **2**: *pl. 21, f. 1.*

2. Peckiella Camphorati (Peck) Seaver, Mycologia 2: 68. 1910.

Hypomyces Camphorati Peck, Bull. N. Y. State Mus. 105: 23. 1906.

Stromata consisting of a thin effuse subiculum overspreading the hymenium of the host and obliterating the gills, forming an even layer, bright lemon-yellow sometimes slightly fading; perithecia numerous, small, immersed in the subiculum or with the necks slightly protruding, darker than the subiculum, pale-brownish; asci cylindric; spores 1-seriate, fusiform with a short apiculus at each end, occasionally blunt at both ends, smooth or very minutely rough, 15–20 × 4 μ, simple, oozing out and forming a white powder over the surface of the stroma.

On the hymenium of *Lactaria camphorata* (Bull.) Fries.
TYPE LOCALITY: Port Jefferson, New York.
DISTRIBUTION: New York.
ILLUSTRATION: Mycologia **2**: *pl. 21, f. 6.*

3. Peckiella lateritia (Fries) Maire, Ann. Myc. 4: 331. 1906.

Sphaeria lateritia Fries, in Kunze & Schmidt, Myk. Hefte **2**: 42. 1823.
Hypocrea lateritia Fries, Summa Veg. Scand. 383. 1849.
Hypomyces lateritius Tul. Ann. Sci. Nat. IV. 13: 11. 1860.
Hypomyces Vuilleminianus Maire, Bull. Herb. Boiss. **7**: 138. 1899.
Hypomyces Volemi Peck, Bull. Torrey Club **27**: 20. 1900.
Peckiella Vuilleminiana Sacc. & Syd. in Sacc. Syll. Fung. **16**: 560. 1902.
Peckiella hymenioides Peck, Bull. Torrey Club **34**: 102. 1907.

Stromata effuse, more or less cottony, forming an even layer on the hymenium and more rarely on the stem of the host, entirely obliterating the gills, at first white, becoming pale-yellow or yellowish-brown; perithecia thickly scattered, immersed or with the necks of the perithecia more or less prominent, darker than the subiculum, yellowish or brownish, ovoid; asci cylindric, of variable length, often attaining a length of 200 μ; spores fusiform, usually with a distinct apiculus at each end, unequal-sided, at first smooth, becoming delicately verrucose, hyaline or subhyaline, granular within, nucleate or pseudoseptate, 15–25 × 4–5 μ (mostly 15–20 × 4–5 μ).

On different species of gill-fungi, especially *Lactariae*.
TYPE LOCALITY: Europe.
DISTRIBUTION: Vermont to Alabama; also in Europe.
ILLUSTRATIONS: Tul. Fung. Carp. **2**: *pl. 30, f. 5;* Mycologia **2**: *pl. 21, f. 5.*

4. Peckiella transformans (Peck) Sacc. Syll. Fung. 9: 945. 1891.

? *Hypomyces insignis* Berk. & Curt.; Berk. Jour. Linn. Soc. **9**: 424. 1867.
Hypomyces transformans Peck, Ann. Rep. N. Y. State Mus. **29**: 57. 1878.

Stromata effuse, variable in color, dull-orange, ochraceous or brick-red; perithecia numerous, thickly scattered, subglobose, partially buried in the subiculum, with the necks

prominent, amber or orange; asci cylindric; spores fusiform with an apiculus at each end, becoming somewhat rough, simple or with the endochrome obscurely divided, hyaline, 32–37 μ long.

On *Chanterel Chantarellus* (L.) Murrill, which it transforms into an irregular mass.
TYPE LOCALITY: Sandlake, New York.
DISTRIBUTION: New York to Massachusetts and Pennsylvania; (Mexico?).
ILLUSTRATION: Mycologia **2**: *pl. 21, f. 4.*

5. **Peckiella Banningiae** (Peck) Sacc. Syll. Fung. **9**: 945. 1891.

Hypomyces Banningii Peck, Bot. Gaz. **4**: 139. 1879.

Stromata white, then sordid, transforming the hymenium of the host; perithecia crowded, ovoid, with a papilliform ostiolum, pale-amber or dull-yellow; asci cylindric, slender; spores 1-seriate, fusiform, hyaline, white in mass, 30–35 $\times$ 5–6 μ, becoming delicately roughened externally, with a distinct apiculus at each end, simple.

On decaying fungi, apparently some *Lactaria*.
TYPE LOCALITY: Baltimore, Maryland.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia **2**: *pl. 21, f. 2.*

6. **Peckiella Hymenii** Peck, Bull. N. Y. State Mus. 116: 28. 1907.

Stromata white, overrunning the hymenium of the host and obliterating the gills, sometimes interrupted, becoming yellowish with age; perithecia minute, ovoid, immersed with the necks protruding, numerous, pale-yellow, becoming darker with age; asci cylindric; spores 1-seriate with ends overlapping, fusiform but not apiculate, straight or a little curved or doubly curved, simple, slender, 35–40 $\times$ 5 μ, oozing from the perithecia and forming minute whitish masses upon them.

On the hymenium of species of *Lactaria*.
TYPE LOCALITY: Wading River, New York.
DISTRIBUTION: New York and Pennsylvania.
ILLUSTRATION: Mycologia **2**: *pl. 21, f. 4.*

9. **HYPOMYCES** (Fries) Tul. Ann. Sci. Nat. IV. **13**: 11. 1860.

Hypocrea § *Hypomyces* Fries, Syst. Orbis Veg. 105. 1825.
Hypocrea § *Nectria* Fries, Syst. Orbis Veg. 105, in part. 1825.
Hypocrea § *Clintoniella* Sacc. Syll. Fung. **2**: 532. 1883.
Clintoniella Rehm, Hedwigia **39**: 223. 1900.

Stromata consisting of an effuse cottony subiculum often of considerable extent (rarely subpatellate and subfleshy), occurring as a parasite on fleshy fungi or more rarely on old wood, rotten leaf-mould and other substrata where there is no trace of other fungi; conidial phase variable, represented by species of *Sepedonium*, *Verticillium*, *Trichothecium*, *Dactylium*, etc.; perithecia numerous, usually thickly scattered and immersed in the subiculum, rarely subsuperficial or with the necks more or less protruding; asci cylindric, 8-spored; spores fusoid or fusiform, usually with an apiculus at each end or ends obtuse, 1-septate hyaline, smooth or rough.

Type species, *Sphaeria Lactifluorum* Schw.

Stromata orange, purple, or rose-colored.
  Stromata some shade of orange, occasionally purple with age.
    Stromata entirely covering and transforming the hymenium of *Lactariae*; perithecia entirely immersed. 1. *H. Lactifluorum.*
    Stromata forming interrupted patches on wood and fungi of various kinds.
      Stromata bright-orange, fading with age; perithecia entirely immersed; occurring on wood, decaying leaves, etc. 2. *H. apiculatus.*
      Stromata dull-orange or rust-colored, cottony; perithecia subsuperficial; on fungi of various kinds. 3. *H. aurantius.*
  Stromata delicately rose-colored, on wood, etc. 4. *H. rosellus.*
Stromata bright lemon-yellow, amber, or pallid.
  Stromata bright lemon-yellow.
    Stromata yellow, cottony; perithecia reddish, immersed; on *Boleti*. 5. *H. chrysospermus.*
    Stromata and perithecia both lemon-yellow; perithecia subsuperficial. 6. *H. aureo-nitens.*
  Stromata dull-yellow or pallid.
    Spores comparatively small, not over 20 μ long.
      Spores unequally septate, rough. 7. *H. hyalinus.*

Spores equally septate, smooth.
On *Coriolus versicolor*; perithecia amber. 8. *H. polyporinus.*
On wood and fungi of various kinds; spores showing a tendency to separate at the septum.
Spores large, 18–20 μ long; stromata subpatellate. 9. *H. citrinellus.*
Spores small, 10 μ long; stromata effuse, papery. 10. *H. papyraceus.*
On soil. 11. *H. sepulcralis.*
Spores very large, 35 μ long, rough. 12. *H. macrosporus.*

1. Hypomyces Lactifluorum (Schw.) Tul. Ann. Sci. Nat. IV. 13 : 11. 1860.

Sphaeria Lactifluorum Schw. Schr. Nat. Ges. Leipzig 1 : 30. 1822.
Hypomyces purpureus Peck, Bull. Torrey Club 25 : 327. 1898.

Stromata thin, effuse, covering the hymenium and stem of the host and entirely obliterating the gills, bright-orange, the color changing to bright-purple as the host decays; perithecia thickly scattered, immersed or with the necks slightly protruding, a little darker than the subiculum; asci very long, cylindric; spores 1-seriate with the ends overlapping, fusiform with an apiculus at each end, for the most part slightly curved or unequal-sided, with a medial septum, hyaline and strongly roughened at maturity, 35–40 × 7–8 μ, oozing from the perithecia and forming a white powder over the surface of the stroma.

Parasitic on species of *Lactaria*.
TYPE LOCALITY: North Carolina.
DISTRIBUTION: Maine to North Dakota and Alabama.
ILLUSTRATIONS: Ellis & Ev. N. Am. Pyrenom. *pl. 11, f. 12–14*; Bull. N. Y. State Mus. 105 : *pl. 103*; Mycologia 2 : *pl. 20, f. 3–5*; *pl. 21, f. 7*.
EXSICCATI: Ellis & Ev. Fungi Columb. *1734*; Ellis, N. Am. Fungi *467*, *643*; Shear, N. Y. Fungi *89*; Wilson & Seaver, Ascom. *34*.

2. Hypomyces apiculatus (Peck) Seaver, Mycologia 2 : 73. 1910.

Hypocrea apiculata Peck, Ann. Rep. N. Y. State Mus. 29 : 57. 1878.
? *Hypomyces xylophilus* Peck, Bull. Torrey Club 11 : 28. 1884.
Clintoniella apiculata Sacc. & Syd. in Sacc. Syll. Fung. 16 : 588. 1902.

Stromata effuse, soft, subfleshy, occurring in irregular patches, at first bright-orange with the margin sterile and lighter, the color very variable, in dried specimens fading to pale-orange, dull-yellow, and finally dirty-whitish especially when exposed to the light; perithecia thickly scattered, immersed with the necks protruding, darker than the subiculum; asci cylindric; spores 1-seriate with the ends overlapping, fusiform with an apiculus at each end, usually a little curved, with a medial septum and slightly constricted, hyaline, 25–35 × 7–8 μ, becoming a little rough at maturity.

On decaying leaves, wood, and remains of old fungi.
TYPE LOCALITY: Catskill Mountains, New York.
DISTRIBUTION: New York to Virginia.
ILLUSTRATION: Mycologia 2 : *pl. 21, f. 8*.

3. Hypomyces aurantius (Pers.) Tul. Ann. Sci. Nat. IV. 13 : 12. 1860.

Sphaeria aurantia Pers. Ic. Descr. Fung. 45. 1800.
Nectria aurantia Fries, Summa Veg. Scand. 388. 1849.
? *Diplocladium minor* Bon. Handb. Myk. 98. 1851.

Stromata effuse, at first whitish, becoming orange or rust-colored, often covering an area 5–8 cm. in diameter or in smaller, interrupted patches; perithecia thickly gregarious or crowded, orange, darker than the subiculum, subconic, with the necks strongly protruding, occasionally with the subiculum almost wanting in weathered specimens; asci cylindric, with the spores slightly overlapping; spores fusiform, usually a little curved, with a medial septum and a short apiculus at each end, becoming strongly verrucose at maturity.

On decaying fungi of various kinds.
TYPE LOCALITY: Europe.
DISTRIBUTION: Connecticut to Colorado and Cuba; also in Europe.
ILLUSTRATIONS: Pers. Ic. Descr. Fung. *pl. 11, f. 4–5*; Mycologia 2 : *pl. 21, f. 9*.

4. **Hypomyces rosellus** (Alb. & Schw.) Tul. Ann. Sci. Nat. IV. **13**: 12. 1860.

?*Sphaeria rosea* Pers. Syn. Fung. 18. 1801.
Sphaeria rosella Alb. & Schw. Consp. Fung. 35. 1805.
Nectria rosella Fries, Summa Veg. Scand. 388. 1849.
Nectria Albertini Berk. & Br. Ann. Mag. Nat. Hist. III. **7**: 452. 1861.
?*Hypomyces roseus* Fuckel, Symb. Myc. 182. 1869.

Stromata forming an effuse subiculum often covering an area of 3–8 cm., cottony, at first whitish becoming rose-colored, lighter near the sterile margin; conidia ellipsoid, hyaline, becoming 1–3-septate; perithecia thickly scattered, darker than the subiculum, nearly blood-red, partially immersed in the subiculum, with the protruding ostiola acute or more or less obtuse, often collapsing; asci cylindric; spores 1-seriate with the ends overlapping in the ascus, with an apiculus at each end and a medial septum, hyaline, becoming slightly rough at maturity, 20–30 × 5 μ.

On fungi, old wood, and rubbish, probably growing on the remains of decaying fleshy fungi.
TYPE LOCALITY: Germany.
DISTRIBUTION: Delaware to North Dakota, Florida, Louisiana, and the West Indies; also in Europe.
ILLUSTRATIONS: Alb. & Schw. Consp. Fung. *pl. 7, f. 3*; Tul. Fung. Carp. **2**: *pl. 30, f. 6–9*; Mycologia **2**: *pl. 21, f. 10*.

5. **Hypomyces chrysospermus** (Bull.) Tul. Ann. Sci. Nat. IV. **13**: 16. 1860.

Reticularia chrysosperma Bull. Herb. Fr. *pl. 476, f. 4*. 1789.
Mucor chrysospermus Bull. Hist. Champ. Fr. 1: 99. 1791.
Uredo mycophila Pers. Obs. Myc. 1: 16. 1796.
Sepedonium chrysospermum Fries, Syst. Myc. **3**: 438. 1832.
Hypomyces boletinus Peck, Bull. N. Y. State Mus. 75: 15. 1904.

Stromata consisting of a golden or lemon-yellow powdery mass which covers the substratum often for several cm.; conidia globose, golden-yellow, beautifully but delicately echinulate, 15–18 μ in diameter; perithecia gregarious or thickly crowded, nestling in the yellow subiculum, reddish or reddish-brown; asci cylindric; spores 1-seriate with the ends overlapping in the ascus, fusiform, mostly curved, and becoming, when mature, slightly rough, 1-septate, with the septum near the basal end, dividing the spore into two unequal cells, 12–15 × 4 μ.

On species of *Boletus*.
TYPE LOCALITY: France.
DISTRIBUTION: Connecticut to Virginia, Wisconsin, and Colorado; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 476, f. 4*; Tul. Fung. Carp. **3**: *pl. 8, f. 1–13*; Mycologia **2**: *pl. 21, f. 16*.

6. **Hypomyces aureo-nitens** Tul. Fung. Carp. **3**: 64. 1865.

Stromata effuse, thin, bright-golden or lemon-yellow overspreading the host often for a distance of 2 cm.; perithecia seated in the stroma, very much exserted or subsuperficial, thickly gregarious, often crowded, darker in color than the subiculum, ovoid; asci cylindric; spores 1-seriate with the ends overlapping, fusiform with the ends sharply pointed, 1-septate, with the septum medial, slightly constricted, 15–18 × 4 μ.

On old fungi (*Polyporus* and *Stereum*).
TYPE LOCALITY: Europe.
DISTRIBUTION: Ohio; also in Europe.
ILLUSTRATIONS: Grevillea **11**: *pl. 156*; Mycologia **2**: *pl. 21, f. 19*.

7. **Hypomyces hyalinus** (Schw.) Tul. Ann. Sci. Nat. IV. **13**: 11. 1860.

Sphaeria hyalina Schw. Schr. Nat. Ges. Leipzig **1**: 30. 1822.
?*Hypomyces Van-Bruntianus* W. Gerard, Bull. Torrey Club **4**: 64. 1873.
?*Hypomyces apiosporus* Cooke, Grevillea **12**: 80. 1884.
Hypomyces inaequalis Peck, Bull. Torrey Club **25**: 328. 1898.
Peckiella hyalina Sacc. Syll. Fung. **9**: 945. 1891.

Stromata effuse, almost entirely covering the host which is often undeveloped, white, pallid, or with a tinge of pink or brownish; perithecia thickly scattered, immersed or par-

tially immersed in the subiculum or with the necks slightly protruding, darker than the subiculum, brownish or reddish-brown; asci cylindric; spores 1-seriate with the ends overlapping, usually with a minute apiculus above, or occasionally obtuse, gradually tapering below, often slightly constricted and septate near the base, at first smooth, becoming strongly verrucose, the septation less distinct in mature spores on account of the wart-like markings on the surface but the constriction usually evident, 15–20 × 5–7 μ, hyaline, or very faintly yellowish.

On various agarics, which are usually deformed and not easily determined.
TYPE LOCALITY: North Carolina.
DISTRIBUTION: Maine to North Carolina.
ILLUSTRATION: Mycologia **2**: *pl. 21, f. 12.*

8. **Hypomyces polyporinus** Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 71. 1873.

Peckiella polyporina Sacc. Syll. Fung. **9**: 945. 1891.

Stromata effuse, covering the hymenium of the host, entirely obliterating the pores, whitish or pale-yellowish; perithecia numerous, thickly scattered or closely crowded, partially immersed in the subiculum, amber; asci cylindric; spores 1-seriate with the ends overlapping, fusiform, mostly a little curved, smooth, 1-septate, 15–20 × 4–4.5 μ.

On the hymenium of *Coriolus versicolor* (L.) Quél.
TYPE LOCALITY: Worcester, New York.
DISTRIBUTION: New York and New Jersey to North Dakota.
ILLUSTRATION: Mycologia **2**: *pl. 21, f. 17.*
EXSICCATI: Ellis & Ev. N. Am. Fungi *1946*; N. Dak. Fungi *8*; Wilson & Seaver, Ascom. *35.*

9. **Hypomyces citrinellus** (Ellis) Seaver, Mycologia **2**: 79. 1910.

Hypocrea citrinella Ellis, Bull. Torrey Club **6**: 108. 1876.

Stromata subpatellate, gregarious or scattered, small, 1–2 mm. in diameter, fleshy or subfleshy, pale lemon-yellow, the upper surface punctate with the protruding necks of the perithecia, becoming wrinkled in drying; asci cylindric; spores 1-seriate, strongly overlapping, fusiform with the ends acute, 1-septate, strongly constricted at the septum, 18–20 × 4 μ, showing a tendency to become disjointed at the septum, especially when removed from the ascus.

On dead bark of *Vaccinium*.
TYPE LOCALITY: New Jersey.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ellis & Ev. N. Am. Pyrenom. *pl. 11, f. 4, 5*; Mycologia **2**: *pl. 21, f. 14.*

10. **Hypomyces papyraceus** (Ellis & Holway) Seaver, Mycologia **2**: 80. 1910.

Hypocrea papyracea Ellis & Holway; Ellis & Ev. Jour. Myc. **2**: 66. 1886.

Stromata effuse, consisting of a thin, membranaceous mycelial growth easily separable from the substratum, of a papery consistency, very pale-yellow or whitish, 2–3 cm. in diameter; perithecia very minute, about 150 μ in diameter, subsuperficial, reddish and appearing like minute specks on the surface of the stroma; asci cylindric; spores 1-seriate with the ends overlapping, fusiform, 1-septate, strongly constricted at the septum and often disjointed, the cells easily separating, especially when removed from the ascus, 10 × 2–3 μ.

On decaying wood and fungi.
TYPE LOCALITY: Decorah, Iowa.
DISTRIBUTION: Ohio to Iowa.
ILLUSTRATION: Mycologia **2**: *pl. 21, f. 15.*

11. **Hypomyces sepulcralis** Pat. Bull. Soc. Myc. Fr. **18**: 179. 1902.

Stromata crustaceous, irregular, white to pale-ochraceous, thin; perithecia subglobose, partially immersed, brown, closely gregarious, with the conic ostiola slightly protruding; asci cylindric, narrow, 120–150 × 5–6 μ; spores 1-seriate, fusoid, hyaline, not apiculate, smooth or very slightly rough, 1-septate, not constricted at the septum.

On the ground in a cemetery.
TYPE LOCALITY: Guadeloupe.
DISTRIBUTION: Known only from the type locality.

12. **Hypomyces macrosporus** Seaver, Mycologia **2**: 80. 1910.

Stromata consisting of an effuse subiculum entirely covering the hymenium of the host and obliterating the gills, pallid or pale-ochraceous (in dried specimens), covered over with a pale-yellow powder (spores); perithecia numerous and thickly scattered, entirely immersed or with the necks slightly protruding, darker than the stroma; asci cylindric; spores 1-seriate, strongly overlapping, fusiform, with an apiculus at each end, 1-septate, not constricted or the constriction so slight as to be scarcely noticeable, strongly verrucose, hyaline, or very pale-yellowish, 35–40 × 8–9 μ.

On some gill-fungus.
TYPE LOCALITY: [Auburn,] Alabama.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mycologia **2**: *pl. 91, f. 11.*

DOUBTFUL SPECIES

Hypomyces alboluteus Ellis & Ev.; Cockerell, Jour. Inst. Jamaica **1**: 262, *nomen nudum.* 1893. Based on imperfectly developed material; said to be *Glaziella aurantiaca* (Berk. & Curt.) Sacc.

Hypomyces asterophorus Tul. Fung. Carp. **3**: 55. 1865. The spores which were described by Tulasne as the macroconidia of this fungus are now claimed to be the chlamydospores of the host, *Asterophorus Clavus* (Schaeff.) Murrill. It is due to this confusion of the conidia of the parasite and the chlamydospores of the host that the species has been reported from North America. The perfect fruit of the *Hypomyces* has not been found in America.

Hypomyces boleticola (Schw.) Sacc. Syll. Fung. **2**: 476. 1883. *Sphaeria boleticola* Schw. Trans. Am. Phil. Soc. II. **4**: 210. 1832. No specimen was found in the Schweinitz collection.

Hypomyces ochraceus (Pers.) Tul. Fung. Carp. **3**: 41. 1865. *Sphaeria ochracea* Pers. Syn. Fung. 18. 1801. No specimen could be found in Persoon's herbarium.

Hypomyces pannosus (Schw.) Cooke, Grevillea **12**: 80. 1884. *Sphaeria pannosa* Schw. Schr. Nat. Ges. Leipzig **1**: 44. 1822.

Hypomyces tegillum Berk. & Curt.; Berk. Grevillea **4**: 15. 1875. Based on imperfectly developed material.

Hypomyces tomentosus (Fries) Berk. Grevillea **4**: 15. 1875. *Hypocrea tomentosa* Fries; Berk. in Hook. f. Fl. Tasm. **2**: 278. 1859.

Hypomyces torminosus (Dur. & Mont.) Tul. Fung. Carp. **3**: 40. 1865. *Sphaeria torminosa* Dur. & Mont. in Dur. Expl. Sci. Algér. Bot. **1**: 496. 1849.

Hypomyces tubericola (Schw.) Sacc. Syll. Fung. **2**: 476. 1883. *Sphaeria tubericola* Schw. Trans. Am. Phil. Soc. II. **4**: 191. 1832.

Sphaeria flavescens epimyces Schw. Trans. Am. Phil. Soc. II. **4**: 211. 1832. On the hymenium of some resupinate polypore.

10. HYPOCREOPSIS P. Karst. Bidr. Finl. Nat. Folk **23**: 251. 1873.

Dozya P. Karst. Bidr. Finl. Nat. Folk **23**: 28. 1873. Not *Dozya* Sande Lacoste, 1866.

Stromata tubercular, fleshy, effuse, lobate or stellate, superficial; perithecia immersed; asci 8-spored; spores ellipsoid, usually 1-septate, hyaline, the cells not separating.

Type species *Sphaeria riccioidia* Bolt.

Stromata stellately lobed or branched.	1. *H. lichenoides.*
Stromata not stellately branched or lobed.	
Stromata patellate, on dead wood.	2. *H. consimilis.*
Stromata effuse, on fungi.	
On *Tremella.*	3. *H. tremellicola.*
On *Corticium.*	4. *H. subcarnea.*

1. **Hypocreopsis lichenoides** (Tode) Seaver, Mycologia **2**: 82. 1910.

Acrospermum lichenoides Tode, Fungi Meckl. **1**: 9. 1790.
Sphaeria riccioidia Bolt. Hist. Fung. 182. 1791.
Sphaeria parmelioides Mont. Ann. Sci. Nat. II. **6**: 333. 1836.
Hypocrea parmelioides Mont. Syll. Crypt. 210. 1856.

Hypocrea riccioidea Berk. Outl. Brit. Fungol. 383. 1860.
Dozya riccioidea P. Karst. Bidr. Finl. Nat. Folk **23**: 221. 1873.
Hypocreopsis riccioidea P. Karst. Bidr. Finl. Nat. Folk **23**: 251. 1873.
Hypocrea digitata Ellis & Ev. Jour. Myc. 1: 42. 1885.

Stromata radiating from a common center and consisting of several much-divided branches or lobes which may extend entirely around the substratum; lobes 2–3 mm. in diameter and subcylindric, closely appressed and covering the substratum for a distance of 5 cm.; color yellowish, becoming brown or brownish-black with age; upper surface roughened by the slightly protruding necks of the perithecia; perithecia immersed; asci cylindric or slightly clavate, 80–90 × 12 μ; spores ellipsoid, with obtuse ends, a little curved, 1-septate, not constricted, hyaline, 25 × 10 μ.

On partially decayed branches.
TYPE LOCALITY: Mecklenburg, Germany.
DISTRIBUTION: New Hampshire; also in Europe.
ILLUSTRATIONS: Bolt. Hist. Fung. *pl. 182*; Ellis & Ev. N. Am. Pyrenom. *pl. 11, f. 1–3*; E. & P. Nat. Pfl. 1¹: *f. 244, A*; Tode, Fungi Meckl. *pl. 2, f. 15*; Mycologia **2**: *pl. 20, f. 1–2*.

2. **Hypocreopsis consimilis** (Ellis) Seaver, Mycologia **2**: 83. 1910.

Hypocrea consimilis Ellis, N. Am. Fungi *158*. 1878.

Stromata orbicular or ellipsoid, convex, 2–3 mm. in diameter, brick-red, wrinkled, fleshy; asci clavate to cylindric, 60–70 × 3.5–4 μ; spores 1-seriate, hyaline, 10–12 × 3.5–4 μ.

On dead *Azalea viscosa* L.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Ellis & Ev. N. Am. Pyrenom. *pl. 11, f. 8–9*.
EXSICCATI: Ellis, N. Am. Fungi *158*.

3. **Hypocreopsis tremellicola** (Ellis & Ev.) Seaver, Mycologia **2**: 83. 1910.

Hypocrea tremellicola Ellis & Ev. N. Am. Pyrenom. 85. 1892.

Stromata effuse, more or less cottony, covering the host; perithecia numerous, immersed, with the necks slightly protruding, darker than the subiculum; asci cylindric, 60–75 μ long; spores 1-seriate, ellipsoid, slightly smaller toward the base, hyaline, 1-septate, 7–8 × 3 μ.

On *Tremella*.
TYPE LOCALITY: Ohio.
DISTRIBUTION: Known only from the type locality.

4. **Hypocreopsis subcarnea** (Ellis & Ev.) Seaver.

Hypocrea subcarnea Ellis & Ev. Jour. Myc. **3**: 114. 1887.

Perithecia membranaceous, pale-yellowish, minute, about 80 μ in diameter, immersed, or slightly prominent, appearing as minute specks; asci subcylindric, sessile, 30–35 × 5–7 μ; spores 1-seriate or partially 2-seriate above, subhyaline, occasionally with a slightly yellowish tint, ellipsoid, with 1 or 2 oil-drops, 3.5–4.5 × 2–2.5 μ.

On some thin *Corticium* on dead branches of *Lonicera*.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: Ontario to New Jersey.

DOUBTFUL SPECIES

Hypocrea Agaves Maublanc, Bull. Soc. Myc. Fr. **19**: 292. 1903.

Hypocrea cupularis Pat.; Duss, Énum. Champ. Guad. 80. 1903. No specimen has been seen.

11. **BROOMELLA** Sacc. Syll. Fung. **2**: 557. 1883.

Stromata pulvinate or discoid, fleshy or subfleshy; perithecia immersed with the necks slightly protruding; asci cylindric to clavate, 8-spored; spores ellipsoid or fusoid, 2–many-septate, hyaline.

Type species, *Hypocrea Vitalbae* Berk. & Br.

1. **Broomella chlorina** (Cooke) Sacc. Syll. Fung. **2**: 558. 1883.

Hypocrea chlorina Cooke, Grevillea **7**: 49. 1878.

Stromata discoid, ellipsoid or elongate, soft, brownish externally (at least with age), yellowish within; perithecia immersed or slightly protruding; asci clavate, 75–80 × 18–20 μ; spores partially 2-seriate, ellipsoid, 3-septate, subhyaline, 20–24 × 7–9 μ.

On bark of *Hicoria*.
TYPE LOCALITY: Darien, Georgia.
DISTRIBUTION: Known only from the type locality.
EXSICCATI: Rav. Fungi Am. *342*.

12. OOMYCES Berk. & Br. Ann. Mag. Nat. Hist. II. **7**: 185. 1851.

Coscinaria Ellis & Ev. Jour. Myc. **2**: 88. 1886.

Perithecia few, vertical, contained in a membranaceous sac-like structure; asci cylindric, 8-spored; spores filiform, continuous, hyaline, as long as the ascus.

Type species, *Sphaeria carneo-alba* Libert.

1. **Oomyces Langloisii** Ellis & Ev. N. Am. Pyrenom. 69. 1892.

Coscinaria Langloisii Ellis & Ev. Jour. Myc. **2**: 88. 1886.

Stromata tuberculiform, erumpent, fleshy, 0.3–0.5 mm. in diameter, pale-carneous or horn-colored when fresh, becoming nearly black when dry, of a rather close membranaceous texture on the surface, softer within, surrounded by the ruptured epidermis, convex above; perithecia ovoid, minute, with thin, transparent walls, 250–300 × 150–200 μ; asci cylindric, 150–200 × 5 μ; spores filiform, as long as the ascus, hyaline, continuous, 1 μ thick.

On dead stems of *Vigna*.
TYPE LOCALITY: Louisiana.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Ellis & Ev. N. Am. Pyrenom. *pl. 17, f. 5–9*.

13. BARYA Fuckel, Symb. Myc. 93. 1869.

Perithecia fleshy, becoming hard in drying, seated in a loose cottony mycelium bearing conidia; conidia oblong, obscurely 1-septate, obtuse at the ends; asci elongate, lanceolate, tapering above and below, with a globose apex, 8-spored; spores filiform, simple, about as long as the ascus, hyaline.

Type species, *Barya parasitica* Fuckel.

1. **Barya parasitica** Fuckel, Symb. Myc. 93. 1869.

Perithecia gregarious, almost crowded, yellowish-white, surrounded at the base with a white mycelial growth giving the whole cluster, which is about 3 or 4 mm. in diameter, a decidedly whitish appearance; perithecia ovoid, tapering into a rather long neck, almost flask-shaped, rough, 200 × 325 μ; asci at first very slender, tapering above, with a knob-like structure at the apex, becoming broader as they mature, about 200 × 5–6 μ; spores filiform, nearly as long as the ascus, simple.

On *Bertia moriformis* (Tode) De-Not., on wood and (decaying material?) on the ground.
TYPE LOCALITY: Europe.
DISTRIBUTION: New York; also in Europe.
ILLUSTRATIONS: Fuckel, Symb. Myc. *pl. 4, f. 18*; Ann. Rep. N. Y. State Mus. **43**: *pl. 4, f. 13–17*; Rab. Krypt. Fl. 1²: 84, *f. 1–4*.

14. TYPHODIUM Link, Abh. Akad. Wiss. Berlin Phys. **1824**: 175. 1826.

Cordyceps § *Epichloe* Fries, Summa Veg. Scand. 381. 1849.
Epichloe Tul. Fung. Carp. **3**: 24. 1865.

Stromata effuse, subfleshy, at first pale becoming bright-orange, forming rings or sheaths about the stems of grasses; perithecia immersed or with the necks protruding; asci cylindric, 8-spored; spores filiform, many-septate.

Type species, *Sphaeria typhina* Pers.

1. **Typhodium typhinum** (Pers.) Seaver, Mycologia **2**: 86. 1910.

Sphaeria typhina Pers. Ic. Descr. Fung. 21. 1798.
Sphaeria spiculifera Sow. Engl. Fungi *pl. 274*. 1800.
Dothidea typhina Fries, Syst. Myc. **2**: 553. 1823.
Stromatosphaeria typhina Grev. Scot. Crypt. Fl. *pl. 204*. 1825.
Cordyceps typhina Fries, Summa Veg. Scand. 381. 1849.
Epichloe typhina Tul. Ann. Sci. Nat. IV. **13**: 18. 1860.
Sphaceha typhina Sacc. Michelia **2**: 297. 1881.

Stromata effuse, subfleshy, at first pale, becoming bright-orange, forming sheaths 2–5 cm. in length, about the stems of various grasses; conidia ellipsoid, hyaline, 4–5 × 3 μ; perithecia thickly scattered, partially to entirely immersed, soft, membranaceous, similar in color to the stroma, with a rather prominent ostiolum; asci cylindric, very long, 8-spored; spores nearly as long as the ascus, in a close fascicle, about 2 μ in diameter, many-septate.

On living grasses, of various genera.
TYPE LOCALITY: Europe.
DISTRIBUTION: New York to Washington and Mexico; also in Europe.
ILLUSTRATIONS: Grev. Scot. Crypt. Fl. *pl. 204;* Pers. Ic. Descr. Fung. *pl. 7, f. 1;* Sow. Engl. Fungi *pl. 274;* Mycologia **2**: *pl. 20, f. 17–18.*
EXSICCATI: Ellis, N. Am. Fungi *185;* D. Griff. W. Am. Fungi *19, 185;* Wilson & Seaver, Ascom. *80.*

15. **HYPOCRELLA** Sacc. Michelia **1**: 322. 1878.

Stromata patellate or effuse, bright-colored, often becoming darker with age, fleshy; perithecia immersed or with the necks slightly protruding; asci cylindric, 8-spored; spores filiform, often many-septate and occasionally separating into segments.

Type species, *Hypocrea discoidea* Berk. & Br.

1. **Hypocrella Tamoneae** Earle; Seaver, Mycologia **2**: 87. 1910.

Stromata scattered, hypophyllous, 1–1.5 mm. in diameter, black (at least in aged specimens), suborbicular, crust-like, superficial; perithecia crowded, prominent, finally collapsing, 200–150 μ in diameter; ostiola perforate, large, somewhat irregular; asci cylindric, short-stipitate, 80–100 × 7–8 μ; spores thread-like, very slender, equaling in length the ascus, spirally coiled, about 80 × 0.75 μ; paraphyses numerous.

On living leaves of *Tamonea* sp.
TYPE LOCALITY: Porto Rico.
DISTRIBUTION: Known only from the type locality.

DOUBTFUL AND EXCLUDED SPECIES

Hypocrella atramentosa (Berk. & Curt.) Sacc. Michelia **1**: 323. 1878. This is *Dothidea atramentosa* (Berk. & Curt.) Atk.

Hypocrella phyllogena (Mont.) Speg. Anal. Soc. Ci. Argent. **12**: 216. 1881. *Hypocrea phyllogena* Mont. Ann. Sci. Nat. II. **13**: 340. 1840. Reported from Guadeloupe by Duss; a specimen from the herbarium of Patouillard is sterile.

Hypocrella Sloaneae Pat.; Duss, Énum. Champ. Guad. 80. 1903. On the under surface of leaves of a *Sloanea*.

16. **CORDYCEPS** (Fries) Link, Handb. **3**: 347. 1833.

Sphaeria § *Cordyceps* Fries, Syst. Myc. **2**: 323. 1823.
Torrubia Lév.; Tul. Fung. Carp. **3**: 5. 1865.

Stromata springing from a sclerotium or resting stage composed, usually, of compact mycelial tissue within the bodies of insects or more rarely in other fungi, simple or branched, at first (*Isaria* stage) often delicate, producing conidia, later usually clavate, producing perithecia, which are usually more or less immersed or more rarely subsuperficial, usually collected into a globose, clavate, or agariciform head supported by the sterile stem, sometimes surmounted by a sterile apex; asci cylindric, 8-spored; spores filiform or subfiliform, many-septate, and often breaking into segments in the ascus, or more rarely simple and entire.

Type species, *Clavaria militaris* L.

Sclerotia formed in the bodies of insects or larvae.
- Stromata large, several cm. high.
  - Occurring on larvae or pupae.
    - Head fertile to the tip.
      - Head clavate.
        - Stromata bright-orange; on pupae. — 1. *C. militaris.*
        - Stromata brownish; on larvae.
          - Spore-segments short, 1.5 μ long. — 2. *C. palustris.*
          - Spore-segments long, 3–5 μ long.
            - Plants stout; spore-segments 4–5 μ. — 3. *C. Ravenelii.*
            - Plants slender; spore-segments 3.5 μ. — 4. *C. acicularis.*
      - Head globose or subglobose.
        - Plants purplish. — 5. *C. insignis.*
        - Plants yellowish.
          - Spore-segments 4 μ long. — 6. *C. flavella.*
          - Spore-segments 6–8 μ long. — 7. *C. entomorrhiza.*
    - Head with a sterile apex.
      - Plants stout, yellowish; on white grubs. — 8. *C. herculea.*
      - Plants slender, brownish; on larvae. — 9. *C. stylophora.*
  - Occurring on adult insects (wasps). — 10. *C. sphecocephala.*
- Stromata less than 1 cm. high.
  - Perithecia collected into a definite head, immersed.
    - Spores much shorter than the ascus, fusoid; on scale-insects. — 11. *C. clavulata.*
    - Spores nearly as long as the ascus, filiform; not on scale-insects.
      - Plants 3 mm. high, reddish-purple. — 12. *C. Langloisii.*
      - Plants 5–9 mm. high, yellowish. — 13. *C. armeniaca.*
  - Perithecia scattered, becoming subsuperficial.
    - Stromata very long and slender, 5 cm. high. — 14. *C. Sphingum.*
    - Stromata 1 cm. or less high.
      - Stromata effuse or erect; perithecia becoming spatulate when dry. — 15. *C. Cockerellii.*
      - Stromata erect; perithecia flask-shaped. — 16. *C. isarioides.*

Sclerotia formed in fungi.
- Stromata agariciform. — 17. *C. agariciformia.*
- Stromata clavate. — 18. *C. parasitica.*

1. Cordyceps militaris (L.)Link, Handb. 3: 347. 1833.

Clavaria militaris L. Sp. Pl. 1182. 1753.
Ramaria farinosa Holmsk. Danske Vid.-Selsk. Skr. II. 1: 299. 1781.
Clavaria granulosa Bull. Herb. Fr. *pl. 496, f. 1.* 1790.
Clavaria farinosa Dicks. Pl. Crypt. Brit. 2: 25. 1790.
Isaria farinosa Fries, Syst. Myc. 3: 271. 1832.
Kentrosporium militare Wallr. Beitr. Bot. 166. 1844.
Torrubia militaris Tul. Fung. Carp. 3: 6. 1865.

Sclerotia formed in the pupae of insects, compact, white; conidial phase rising from the sclerotium, consisting of a slender stalk, and a white, floccose, feather-like head; stem slender, very variable in length and diameter, often externally whitish; head at first with numerous delicate conidial branches, giving the whole a powdery appearance; stromata at maturity consisting of a sterile stem and fertile, clavate head, usually simple but rarely forked or branched, the whole often attaining a height of 4–5 cm., often much shorter, bright-orange; perithecia thickly scattered or crowded, for the most part immersed with the necks protruding, or subsuperficial (especially in weathered specimens); asci cylindric; spores filiform, nearly as long as the ascus, many-septate, breaking apart at the septa, giving rise to numerous subellipsoid segments 2–3 μ long.

On pupae buried or partially buried in the ground.
TYPE LOCALITY: Europe.
DISTRIBUTION: Massachusetts to North Dakota and Virginia; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 496, f. 1;* Fl. Dan. *pl. 657, f. 1;* Sow. Engl. Fungi *pl. 60; pl. 308.*

2. Cordyceps palustris Berk. & Br.; Berk. Jour. Linn. Soc. 1: 159. 1857.

Stromata 1–3 cm. high; stem 3–4 mm. thick, simple or divided into 2–4 short branchlets, even, smooth, brown; head 1–2 cm. long, thicker than the stem, cylindric-ovoid, dull brownish-purple or flesh-colored, minutely rough with the slightly protruding necks of the perithecia; asci elongate, narrowly cylindric, capitate, tapering below into a long, slender pedicel; spores arranged in a parallel fascicle, slightly curved, filiform, hyaline, becoming many-septate, 100–120 × 1 μ, the segments 1.5 μ long.

On moist rotten logs, growing from the larvae of some coleopterous insect.
TYPE LOCALITY: South Carolina.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Jour. Linn. Soc. 1: *pl. 1.*

3. **Cordyceps Ravenelii** Berk. & Curt.; Berk. Jour. Linn. Soc. **1**: 159. 1857.

Stromata usually solitary, 3–8 cm. high, consisting of a sterile stem and fertile head; stem 2–5 cm. long, grooved or furrowed, brownish, becoming nearly black on drying, about 2–3 mm. in diameter; fertile head terminal or more rarely with a sterile apex, or with the perithecia in patches, with bare, sterile spaces between; perithecia partially immersed, becoming almost entirely superficial, giving the fertile portions a very rough appearance, similar in color to the stem; asci very long, cylindric; spores filiform, nearly as long as the ascus, breaking up into segments 4–5 μ long.

Springing from the larvae of coleopterous insects.
TYPE LOCALITY: South Carolina.
DISTRIBUTION: South Carolina to Pennsylvania (and Iowa?).
ILLUSTRATIONS: Jour. Linn. Soc. 1: *pl. 1;* Jour. N. Y. Micr. Soc. 1: 92, *f. 3.*
EXSICCATI: Rav. Fungi Car. 4: *28.*

4. **Cordyceps acicularis** Rav.; Berk. Jour. Linn. Soc. **1**: 158. 1857.

? *Torrubia Melolonthae* Tul. Fung. Carp. 3: 12. 1865.
? *Torrubia superficialis* Peck, Ann. Rep. N. Y. State Mus. 28: 70. 1876.
? *Cordyceps Melolonthae* Sacc. Michelia 1: 320. 1878.

Stromata simple, elongate, slender, cylindric, often flexuous, brownish, minutely velvety at the base, smooth above, 5–8 cm. high and 1.5 mm. thick; head cylindric, about 1.5 cm. long and 3 mm. thick; perithecia blackish, large, ovoid, subsuperficial; asci subcylindric, capitate at the apex, with a short pedicel below; spores arranged in a parallel fascicle in the ascus, hyaline, filiform, straight or curved, many-septate, 130 $\times$ 2.5 μ; segments 3.5 μ long.

On larvae buried in the ground.
TYPE LOCALITY: South Carolina.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Jour. Linn. Soc. 1: *pl. 1;* Ann. Bot. 9: *pl. 2, f. 27, 28.*
EXSICCATI: Rav. Fungi Car. 4: *29* (as *Cordyceps carolinensis* Berk. & Rav.).

5. **Cordyceps insignis** Cooke & Rav.; Cooke, Grevillea **12**: 38. 1883.

Stromata 4–6 cm. long, purple; stem 7–8 mm. thick, equal, pallid, sulcate (when dry), very minuely velvety at the base; head broadly ovoid, 1.5 $\times$ 1 cm., very slightly roughened by the necks of the slightly protruding perithecia; asci narrowly cylindric, slightly constricted below the capitate apex, narrowed below into a slender stem-like base; spores arranged in a parallel fascicle, slightly twisted, hyaline, filiform, many-septate, wavy when free, 170–180 $\times$ 15 μ, separating readily into segments in the ascus; segments 6–7 μ long.

On larvae on the ground.
TYPE LOCALITY: South Carolina.
DISTRIBUTION: Known only from the type locality.

6. **Cordyceps flavella** Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 375. 1868.

Stromata gregarious, 3–5 springing from nearly the same point; stem 2.5–3 cm. long, about 1 mm. thick, straight or more or less curved or flexuous, even and smooth; head globose, roughened by the necks of the slightly protruding perithecia, 2 mm. in diameter, similar in color to the stem; asci elongate, narrowly cylindric, capitate at the apex, narrowed below into a slender pedicel; spores arranged in a fascicle, filiform, many-septate, 80 $\times$ 1 μ; component cells about 4 μ long.

Growing from a caterpillar.
TYPE LOCALITY: Cuba.
DISTRIBUTION: Cuba.
ILLUSTRATION: Ann. Bot. 9: *pl. 2, f. 7–10.*

7. **Cordyceps entomorrhiza** (Dicks.) Link, Handb. 3 : 347. 1833.

Sphaeria entomorrhiza Dicks. Pl. Crypt. Brit. 1 : 22. 1785.
Xylaria gracilis Grev. Scot. Crypt. Fl. *pl. 86.* 1823.
Torrubia entomorrhiza Tul. Fung. Carp. 3 : 14. 1865.
Cordyceps Menesteridis Muell. & Berk.; Berk. Gard. Chron. II. 10 : 791. 1878.

Stromata consisting of a sterile stem and a subglobose fertile head; stem very slender, 2–8 cm. long, yellowish; head 5–8 × 4 mm., golden-yellow, darker with age, roughened by the prominent necks; perithecia ovoid, immersed or partially immersed; asci cylindric, 6.5–7 μ thick; spores filiform, many-septate, hyaline, finally separating into segments 6–8 μ long.

On larvae of insects.
TYPE LOCALITY : Europe.
DISTRIBUTION : South Carolina; also in Europe, Asia, Africa, and Australia.
ILLUSTRATIONS : Dicks. Pl. Crypt. Brit. *pl. 3, f. 3;* Gard. Chron. II. 10 : 791, *f. 130;* Tul. Fung. Carp. 3 : *pl. 1, f. 12–14;* Grev. Scot. Crypt. Fl. *pl. 86.*

8. **Cordyceps herculea** (Schw.) Sacc. Syll. Fung. 2 : 577. 1883.

Sphaeria herculea Schw. Trans. Am. Phil. Soc. II. 4 : 188. 1832.

Stromata large, attaining a height of 5–7 cm.; stem yellowish or tan-colored; head enlarged and more than 1 cm. thick, with the fertile portion often interrupted, leaving bare patches and in the specimens examined terminated by a short, obtuse, sterile apex; fertile portion roughened by the slightly prominent necks of the perithecia; asci cylindric, as long as 200–225 μ; spores filiform, nearly as long as the ascus, many-septate, separating into joints 6–8 × 1 μ.

On larvae (white grubs).
TYPE LOCALITY : Salem, North Carolina.
DISTRIBUTION : Connecticut to Ohio and North Carolina.

9. **Cordyceps stylophora** Berk. & Br.; Berk. Jour. Linn. Soc. 1 : 158. 1857.

Stromata solitary, dull-brownish, consisting of a sterile stem and fertile head, with a long sterile apiculus, the entire plant 2–3 cm. high; stem straight or flexuous, more or less velvety, longitudinally wrinkled when dry; fertile head slightly roughened by the protruding necks of the perithecia; sterile apiculus 1 cm. or more long; asci cylindric or slightly constricted below the capitate apex; spores arranged in a fascicle, filiform, curved when free, many-septate, 125–135 × 1 μ; segments 3.5 μ long.

On larvae in rotten logs.
TYPE LOCALITY : South Carolina.
DISTRIBUTION : Michigan to South Carolina.
ILLUSTRATIONS : Jour. Linn. Soc. 1 : *pl. 1;* Ann. Bot. 9 : *pl. 2, f. 40–42.*
EXSICCATI : Rav. Fungi Car. 5 : *49.*

10. **Cordyceps sphecocephala** (Klotzsch) Massee, Ann. Bot. 9 : 13. 1895.

Sphaeria sphecocephala Klotzsch; Berk. Lond. Jour. Bot. 2 : 206. 1843.
Torrubia sphecocephala Tul. Fung. Carp. 3 : 18. 1865.
Cordyceps sphecophila Berk. & Curt.; Berk. Jour. Linn. Soc. 10 : 376. 1868.

Stromata 2–5 cm. high, consisting of a slender, sterile stem and fertile head; stem pale-yellow, fibrous, often slightly twisted, 0.5–1 mm. in thickness; head enlarged, clavate, 5–8 mm. in length and 1.5–2 mm. in thickness, roughened by the slightly protruding necks of the perithecia; perithecia immersed, scattered, prominent; asci very long, cylindric; spores nearly as long as the ascus, breaking into fusoid segments 9–10 μ long.

Springing from the bodies of wasps.
TYPE LOCALITY : Jamaica.
DISTRIBUTION : West Indies.
ILLUSTRATION : Tul. Fung. Carp. 3 : *pl. 1, f. 5–9.*

11. **Cordyceps clavulata** (Schw.) Ellis & Ev. N. Am. Pyrenom. 61. 1892.

Sphaeria clavulata Schw. Trans. Am. Phil. Soc. II. 4 : 188. 1832.
Cordyceps pistillariaeformis Berk. & Br. Ann. Mag. Nat. Hist. III. 7 : 451. 1861.
Torrubia pistillariaeformis Cooke, Handb. Brit. Fungi 771. 1871.
Torrubia clavulata Peck, Ann. Rep. N. Y. State Mus. 28 : 70. 1876.

Sclerotia formed within the bodies of dead scale-insects; stromata slender, clavate, at first sterile, at maturity with an enlarged, clavate, fertile head and a slender, sterile stem, the whole 3–4 mm. high, 3–8 springing from a single sclerotium; stem slender, 1–2 mm. long, grayish or cinereous; head thicker, darker in color and strongly roughened by the protruding necks of the perithecia; asci clavate, broader near the middle, 80–100 × 8–10 μ; spores much elongate, subfiliform, broader near the center and tapering toward either end, 7–8-septate, about 50–80 μ long, 3 μ thick at the broadest point, hyaline.

On dead scale-insects on the branches of various kinds of trees and shrubs.
TYPE LOCALITY: Bethlehem, Pennsylvania.
DISTRIBUTION: New York and New Jersey to North Dakota.
ILLUSTRATIONS: Ann. Mag. Nat. Hist. III. **7**: *pl. 16, f. a–c*; Ellis & Ev. N. Am. Pyrenom. *pl. 15, f. 11–13*.
EXSICCATI: Ellis & Ev. N. Am. Fungi *2814*.

12. **Cordyceps Langloisii** Ellis & Ev. N. Am. Pyrenom. 62. 1892.

Stromata solitary, simple, consisting of a sterile stem and a subglobose head, the entire plant about 3 mm. high; stem 1 mm. thick, cylindric or subcompressed; head capitate, at first white, becoming reddish-purple, the upper convex surface fertile; perithecia tough-membranaceous, ovoid-conic, 100–150 × 200–300 μ, partially immersed in the stroma; asci very long, subcylindric; spores filiform, interwoven, nearly as long as the ascus, less than 0.5 μ thick.

On dead larvae of the mason wasp.
TYPE LOCALITY: St. Martinsville, Louisiana.
DISTRIBUTION: Known only from the type locality.

13. **Cordyceps armeniaca** Berk. & Curt.; Berk. Jour. Linn. Soc. **1**: 158. 1857.

Stromata solitary or 2 or 3 springing from nearly the same point, 5–9 mm. high, consisting of a sterile stem and fertile head; stem about 1 mm. thick, often flexuous and twisted, pale-orange with a tinge of pink; head subglobose, 2–3 mm. in diameter, apricot-colored, roughened by the slightly protruding necks of the perithecia; asci long, cylindric-clavate, capitate, with a slender pedicel below; spores in a fascicle, slightly curved when free, filiform, becoming many-septate, 80–85 × 1 μ, breaking up into segments 3 μ in length.

On the excrement of birds (probably containing insect remains).
TYPE LOCALITY: South Carolina.
DISTRIBUTION: South Carolina.
ILLUSTRATIONS: Jour. Linn. Soc. **1**: *pl. 1, f. 1*; Ann. Bot. **9**: *pl. 2, f. 18*.

14. **Cordyceps Sphingum** (Schw.) Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 375. 1868.

Isaria Sphingum Schw. Schr. Nat. Ges. Leipzig 1: 126. 1822.
Torrubia Sphingum Tul. Fung. Carp. 3: 12. 1865.

Stromata numerous, as many as thirty often springing from a single sclerotium, very slender and thread-like, about 5 cm. high and 1 mm. in thickness, cinereous, smooth or slightly pruinose, enlarged at the base, more or less bent above; perithecia subsuperficial, subconic, 125–150 × 200–225 μ, brownish; asci elongate, cylindric; spores filiform, as long as the ascus, about 2 μ thick.

On dead larvae in cocoon.
TYPE LOCALITY: North Carolina.
DISTRIBUTION: New Jersey to North Carolina.
ILLUSTRATIONS: Ellis & Ev. N. Am. Pyrenom. *pl. 15, f. 4–7*; Tul. Fung. Carp. 3: *pl. 1, f. 1, 2*.

15. **Cordyceps Cockerellii** (Ellis & Ev.) Ellis; Cockerell, Jour. Inst. Jamaica **1**: 180. 1893.

Ophionectria Cockerellii Ellis & Ev.; Ellis, Jour. Inst. Jamaica 1: 141. 1892.

Stromata effuse, spreading over and almost entirely covering the substratum, or erect and 1–2 mm. high, yellow; perithecia occurring in cespitose rounded or irregular clusters, or scattered, subsuperficial or nestling in the substratum; individual perithecia elongate,

flask-shaped or cylindric, about 1 mm. high and 0.5 mm. in diameter, reddish-brown or slightly translucent, smooth, at maturity collapsing laterally, becoming spatulate in form; asci very slender, about 300 μ long; spores filiform, nearly as long as the ascus and about 1 μ thick, breaking up into short segments.

On the dead body of some undetermined insect resembling a locust.
TYPE LOCALITY: Jamaica.
DISTRIBUTION: Jamaica.

16. Cordyceps isarioides M. A. Curt.; Massee, Ann. Bot. 9: 36. 1895.

Stromata gregarious, springing from a dense, white mycelium which almost entirely covers the host, 4–8 mm. high, about 1.5 mm. thick, cylindric, almost smooth, even, ochraceous (when dry), sometimes slightly curved; head 3–6 mm. long, cylindric, obtuse, axial portion not thicker than the stem; perithecia subsuperficial, large, flask-shaped, with elongate necks, ochraceous, crowded, spreading on all sides at right angles to the axis; asci narrowly cylindric, slightly capitate, the base narrowed into a slender pedicel; spores filiform, continuous, flexuous when free, hyaline, 125–135 $\times$ 1.5 μ, arranged in a parallel fascicle in the ascus.

Growing from the remains of a moth.
TYPE LOCALITY: United States.
DISTRIBUTION: Known only from the type collection.
ILLUSTRATION: Ann. Bot. 9: *pl. 2, f. 36–39.*

17. Cordyceps agariciformia (Bolt.) Seaver.

Sphaeria agariciformia Bolt. Hist. Fung. 130. 1789.
Clavaria capitata Holmsk. Topsv. 38. 1790.
Cordyceps capitata Link, Handb. 3: 347. 1833.
Torrubia capitata Tul. Fung. Carp. 3: 22. 1865.
Cordyceps canadensis Ellis & Ev. Bull. Torrey Club 25: 501. 1898.
Cordyceps nigriceps Peck, Bull. Torrey Club 27: 21. 1900.

Stromata occurring singly or in clusters of several each, 3–8 cm. high, consisting of a sterile stem and an ovoid or capitate, fertile head; stem uniform in thickness or a little thicker below, fibrous, yellowish, becoming nearly black (in dried specimens), smooth; head ovoid or agariciform, about 1 cm. in diameter, reddish-brown, becoming nearly black, roughened by the slightly protruding necks of the perithecia; perithecia immersed, but prominent; asci very long, cylindric, about 15 μ thick; spores filiform, nearly as long as the ascus, finally breaking into segments, subhyaline, fusoid or oblong-ellipsoid, with the ends rounded, 20–40 $\times$ 4–5 μ.

Parasitic on *Scleroderma* (?) and *Elaphomyces*.
TYPE LOCALITY: England.
DISTRIBUTION: Maine to Ontario and Florida.
ILLUSTRATIONS: Bolt. Hist. Fung. *pl. 130;* Tul. Fu Carp. 3: *pl. 2, f. 10–15;* Pers. Myc. Eur. 1: *pl. 10, f. 1–3.*
EXSICCATI: Rav. Fungi Am. *387;* Rav. Fungi Car. 5: *48.*

18. Cordyceps parasitica (Willd.) Seaver.

Clavaria parasitica Willd. Fl. Berol. 405. 1787.
Clavaria radicosa Bull. Herb. Fr. *pl. 440, f. 2.* 1789.
Sphaeria ophioglossoides Ehrh.; Pers. in Holsmk. Coryph. 144. 1797.
Sphaeria radicosa DC. Fl. Fr. 2: 283. 1805.
Cordyceps ophioglossoides Link, Handb. 3: 347. 1833.
Torrubia ophioglossoides Tul. Fung. Carp. 3: 20. 1865.

Stromata solitary or very rarely cespitose, consisting of a slender, sterile stem and an enlarged, clavate, fertile head; stem olivaceous, longitudinally striate, becoming very dark-colored in dried specimens, sending out numerous branching root-like fibers which surround the substratum and extend for some distance into the surrounding soil; head clavate, much enlarged, tapering often both above and below, dark-brown, becoming nearly black in drying and roughened by the protruding perithecia; perithecia thickly scattered, immersed or slightly protruding; asci very long, often 300 μ, and 8–10 μ in diameter; spores filiform, nearly as long as the ascus, many-septate and often breaking up into segments; segments short, a little longer than broad, about 3–4 $\times$ 2–3 μ.

On species of *Elaphomyces*.
TYPE LOCALITY: Europe.
DISTRIBUTION: Ontario to Rhode Island and Virginia; also in Europe.
ILLUSTRATIONS: Willd. Fl. Berol. *pl. 7, f. 17*; Bull. Herb. Fr. *pl. 440, f. 2*.

DOUBTFUL SPECIES

Cordyceps albella Massee, Ann. Bot. 9: 39. 1895. The species was based on imperfectly developed material.

Cordyceps albida Berk. & Curt.; Cooke, Grevillea 12: 78. 1884. On crickets in Cuba. Mr. Cooke states: "Too imperfectly developed for description."

Cordyceps caloceroides Berk. & Curt.; Berk. Jour. Linn. Soc. 10: 375. 1868.

Cordyceps Cicadae (Miq.) Massee, Ann. Bot. 9: 38. 1895. *Isaria Cicadae* Miq. Bull. Sci. Phys. Nat. Néerl. 1838: 85. 1838. *Torrubia Miquelii* Tul. Fung. Carp. 3: 11. 1865. *Cordyceps Miquelii* Sacc. Michelia 1: 320. 1878. This species, which occurs on the larvae of *Cicada*, has been reported as occurring in the United States.

Cordyceps gigantea (Mont.) Massee, Ann. Bot. 9: 38. 1895. *Isaria gigantea* Mont. Pl. Cell. Cuba 309. 1842. *Cordyceps Montagnei* Berk. & Curt.; Berk. Jour. Linn. Soc. 10: 375. 1868. Only the conidial phase of this species is known, the *Isaria* having been originally reported from Cuba.

Cordyceps myrmecophila Ces.; Klotzsch, Herb. Viv. Myc. *1033*. 1846. The species is said to occur in North America.

Cordyceps sobolifera (Hill) Sacc. Michelia 1: 321. 1878. *Clavaria sobolifera* Hill; W. Wats. Phil. Trans. 53: 271. 1764. *Torrubia sobolifera* Tul. Fung. Carp. 3: 10. 1865. *Sphaeria sobolifera* Berk. Lond. Jour. Bot. 2: 207. 1843. On larvae of *Cicada*. The species has been reported from the West Indies.

17. SPERMOEDIA Fries, Syst. Myc. 2: 268. 1822.

Sphacelia Lév. Mém. Soc. Linn. Paris 5: 578. 1827.
Kentrosporium Wallr. Beitr. Bot. 163. 1844.
Claviceps L. Tul. Compt. Rend. Acad. Sci. Paris 33: 646. 1851.

Sclerotia formed in the inflorescence of various grasses and sedges, at first consisting of a soft mass of mycelium which produces conidia accompanied with a saccharine fluid, at maturity hard, subcylindric or horn-shaped, purplish-black externally, white within; stromata developing from the sclerotium after a period of rest, consisting of a sterile stem and fertile head; head subglobose, grayish or reddish-brown, the margin often partially free; perithecia flask-shaped, immersed in the stroma or with the necks slightly protruding; asci cylindric, usually capitate, 8-spored; spores filiform, nearly as long as the ascus, simple, hyaline.

Type species, *Sclerotium Clavus* DC.

Sclerotia formed in the inflorescence of grasses.
  Sclerotia purplish-black.
    Sclerotia large, 1–2 cm. long. — 1. *S. Clavus*.
    Sclerotia small, not more than 5 mm. long. — 2. *S. microcephala*.
  Sclerotia cinereous. — 3. *S. cinerea*.
Sclerotia formed in the inflorescence of sedges. — 4. *S. nigricans*.

1. Spermoedia Clavus (DC.) Fries, Syst. Myc. 2: 268. 1822.

Sclerotium Clavus DC. Fl. Fr. 6: 115. 1815.
Sphaeria purpurea Fries, Syst. Myc. 2: 325. 1823.
Sphacelia Segetum Lév. Mém. Soc. Linn. Paris 5: 578. 1827.
Claviceps purpurea L. Tul. Ann. Sci. Nat. III. 20: 45. 1853.

Sclerotia forming in the young ovaries of various species of grasses, at first soft and viscid, at maturity hard, purplish-black externally, whitish within, 1–2 cm. long; stromata often as many as 20–30 from a single sclerotium; stem very slender, flexuous or spirally twisted and of a dark-brownish color; head subglobose with the margin partially free, about 1–2 mm. in diameter, reddish-brown in color and roughened by the slightly protruding necks of the perithecia; perithecia entirely immersed or very slightly protruding, flask-shaped, 150–175 × 200–250 μ; asci very long, cylindric, 100–125 × 4 μ.

In the inflorescence of rye, and of other wild and cultivated grasses.
TYPE LOCALITY: France.

DISTRIBUTION: New York to Montana and Utah, and probably throughout North America; also in Europe.
ILLUSTRATIONS: Ann. Sci. Nat. III. **20**: *pl. 1, 2, 3*; Rab. Krypt. Fl. 1²: *f. 1–5*; E. & P. Nat. Pfl. 1¹: *f. 247, B–L*.
EXSICCATI: Ellis & Ev. Fungi Columb. *1614, 1816, 2216, 2317*; D. Griff. W. Am. Fungi *42*.

2. Spermoedia microcephala (Wallr.) Seaver.

Kentrosporium microcephalum Wallr. Beitr. Bot. 164. 1844.
Sphaeria microcephala Wallr. Beitr. Bot. 164, as syn. 1844.
Claviceps microcephala L. Tul. Ann. Sci. Nat. III. **20**: 49. 1853.

Sclerotia not exceeding 5 mm. in length; apparently differing from the preceding species only in the smaller size of the sclerotia and stromata.

In the inflorescence of various grasses; American specimens on *Calamagrostis*.
TYPE LOCALITY: Europe.
DISTRIBUTION: North Dakota; also in Europe.
ILLUSTRATIONS: Wallr. Beitr. Bot. *pl. 3, f. 10–16*; Ann. Sci. Nat. III. **20**: *pl. 4, f. 1–11*.
EXSICCATI: Brenckle, Fungi Dak. *4*.

3. Spermoedia cinerea (D. Griff.) Seaver.

Claviceps cinereum D. Griff. Bull. Torrey Club **28**: 240. 1901.

Sclerotia clavate, gradually tapering upwards, straight, curved, twisted, or contorted, 1.5–3 cm. long and 1.75–2.5 mm. thick at the base, very viscid while developing, the base permanently invested by the flowering glumes of the host which are smooth, shining, black and closely adherent, smooth as far as covered by the glumes, reticulate for some distance above, the reticulations gradually disappearing above and merged into closely placed, longitudinal striations which disappear near the apex where the surface is nearly smooth or irregularly roughened, dark-gray at the base, gradually fading to very light-gray or almost white at the apex; stromata erect, erumpent; stem cylindric or slightly fusiform, short, stout, almost white; head slightly flattened below and overlapping the upper end of the stalk, 2–3 mm. in diameter, light-gray, almost smooth, viscid, covered with small, darker points indicating the position of the perithecia; perithecia immersed, ovoid or subovoid, 190–225 × 60–90 μ; asci narrowly cylindric, slightly narrowed below into a rather long, stout pedicel and slightly enlarged at the point of attachment, 135–150 × 4–5 μ.

Growing on the inflorescence of species of *Hilaria*.
TYPE LOCALITY: Cochise, Arizona.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Bull. Torrey Club **28**: 238, *f. 1–2*.
EXSICCATI: D. Griff. W. Am. Fungi *97*.

4. Spermoedia nigricans (L. Tul.) Seaver.

Claviceps nigricans L. Tul. Ann. Sci. Nat. III. **20**: 51. 1853.

Sclerotia formed in the inflorescence of the host, 3–5 in a single spikelet, subcylindric or curved, often slightly flattened, brownish to purplish-black externally, white within, longitudinally striate; stromata not seen in American specimens.

On species of spike-rush (*Eleocharis*).
TYPE LOCALITY: Europe.
DISTRIBUTION: North Dakota and South Dakota; also in Europe.
ILLUSTRATION: Ann. Sci. Nat. III. **20**: *pl. 4, f. 15–22*.
EXSICCATI: D. Griff. W. Am. Fungi *10*.

DOUBTFUL SPECIES

Claviceps? caricina D. Griff. Bull. Torrey Club **29**: 300. 1902. Mycelium of the fungus extending throughout the entire substance of the parenchymatous tissue of the center of the culm of the host and condensing in one to four places into black, longitudinally-striate sclerotia 1.5–5 mm. × 1–5 cm., the interior of which is white, of uniform density and made up of loosely interwoven, colorless, thick-walled and sparingly-septate hyphae. On *Carex nebraskensis* Dewey; Oregon.

18. BALANSIA Speg. Anal. Soc. Ci. Argent. **19**: 45. 1885.

? *Ephelis* Fries, Summa Veg. Scand. 370. 1849.
? *Ophiodothis* Sacc. Syll. Fung. **2**: 652. 1883.
Dothichloe Atk. Bull. Torrey Club **21**: 223. 1894.

Sclerotia consisting of a more or less compact fungous tissue formed in the stems or inflorescence of plants; stromata arising from the sclerotium, stipitate and capitate or sessile, separated from the sclerotium by a constriction; perithecia immersed in the stroma; asci 8-spored; spores filiform, nearly as long as the ascus.

Type species, *Balansia claviceps* Speg.

1. **Balansia Hypoxylon** (Peck) Atk. Jour. Myc. **11**: 254. 1905.

? *Ephelis mexicana* Fries; Berk. Jour. Linn. Soc. **10**: 353. 1868.
Epichloe Hypoxylon Peck, Ann. Rep. N. Y. State Mus. **27**: 108. 1875.
Hypocrella Hypoxylon Sacc. Syll. Fung. **2**: 581. 1883.
? *Ephelis borealis* Ellis & Ev. Jour. Myc. **1**: 86. 1885.
Dothichloe Hypoxylon Atk. Bull. Torrey Club **21**: 223. 1894.

Sclerotia formed in the fruiting axes of the host, curved and irregular, 1 cm. or more in length, grayish or blackish; stromata black, prominent, pulvinate or subhemispheric, 1–5 mm. in diameter, several springing from the same sclerotium, minutely roughened by the slightly protruding perithecia; perithecia immersed; asci cylindric, with a pedicel at the base, as much as 20 μ in length; spores 1 μ thick, at maturity breaking into segments 3–4 μ long.

On *Danthonia spicata* (L.) Beauv., and other grasses.
TYPE LOCALITY: Sandlake, New York.
DISTRIBUTION: Maine to South Carolina, Texas, and Iowa.
ILLUSTRATION: Jour. Myc. **11**: *pl. 81, 82, 83.*
EXSICCATI: Barth. Fungi Columb. *3027.*

DOUBTFUL SPECIES

Balansia discoidea P. Henn. Hedwigia Beibl. **39**: 77. 1900. Doubtfully reported for North America.

DOUBTFUL GENERA

GLAZIELLA Berk. in Warming, Vidensk. Meddel. **1879–80**: 31. 1879.

"Stroma subglobosum laeticolor; perithecia pallida, gelatina hyalina repleta." Type species, *Glaziella vesiculosa* Berk.

GLAZIELLA AURANTIACA (Berk. & Curt.) Sacc. Syll. Fung. **2**: 582. 1883.

Xylaria aurantiaca Berk. & Curt.; Berk. Jour. Linn. Soc. **10**: 382. 1868.
? *Glaziella sulfurea* Pat. Bull. Soc. Myc. Fr. **15**: 206. 1899.

"Subglobosa, inflata, aurantiaca, polita, subtus pallidior, ostiolis impressis." Commonly collected in the West Indies, but always sterile; of doubtful relationship.

USTILAGINOIDEA Bref. Unters. Gesammt. Myk. **12**: 194. 1895.

The imperfect stage of this fungus resembles a smut and the perfect stage is said to be similar to *Spermoedia;* the genus has been placed in the *Hypocreales* by Lindau. *Ustilaginoidea Oryzae* (Pat.) Bref. *loc. cit.*, commonly known as the green smut of rice, is reported as occurring in Louisiana.

Order **FIMETARIALES**

By Fred Jay Seaver

Perithecia superficial or deeply sunken in the substratum, usually without stroma, but, when the latter is present, perithecia immersed with the necks slightly protruding, dark-colored, black or nearly so, occasionally dark-brown, subglobose, ovoid, or flask-shaped, smooth and naked or thickly clothed with bristle-like or flexuous hairs which are simple or branched and often overtop the perithecia forming a dense tuft; perithecial wall thin, membranaceous to coriaceous. Asci evanescent and scarcely visible in mature plants, or persistent but delicate, 4–many-spored. Spores simple or compound, often surrounded with a hyaline gelatinous envelope or with a long apiculus at each end, usually dark-colored, yellow to greenish, dark-brown or blackish, the compound spores often deeply constricted at the septa. Paraphyses persistent or evanescent. Plants growing on decaying materials of various kinds, especially on the dung of animals.

Perithecia overtopped with a dense mass of hairs; asci and paraphyses evanescent. — Fam. 1. Chaetomiaceae.

Perithecia not overtopped with hairs; asci and paraphyses persistent but delicate. — Fam. 2. Fimetariaceae.

Family 1. CHAETOMIACEAE

By Helen Letitia Palliser

Perithecia superficial, free or adnate, generally seated on a superficial mycelium, scattered or gregarious, thin and membranaceous, pale-brown to black, usually with an ostiolum at the apex, thickly clothed with hairs; basal hairs functioning as rhizoids; apical hairs usually longer and coarser, branched or simple, forming a tuft above the perithecia. Asci clavate, evanescent, seldom visible in a mature specimen. Paraphyses evanescent. Spores simple, ellipsoid or ovoid to subglobose, more or less compressed, usually more or less apiculate on the ends, with a cup-like depression on one side which causes them to appear spindle-shaped or narrowly ellipsoid in profile. Species all saprophytic, infesting a firm rather moist substratum, such as decaying parts of plants or dung of animals.

1. CHAETOMIUM Kunze & Schmidt, Myk. Hefte 1: 15. 1817.

Ascotricha Berk. Ann. Nat. Hist. 1: 257. 1838.

Perithecia superficial, thin-membranaceous, with an apical tuft of hair or bristles and usually with an ostiolum; asci club-shaped, evanescent; spores simple, hyaline to dark-brown, more or less compressed.

Type species, *Chaetomium globosum* Kunze.

Apical hairs all simple.
- Hairs straight and bristle-like. — 1. *C. abietinum.*
- Hairs flexuous.
  - Hairs circinate or subcircinate.
    - Hairs circinate and not swollen at the base. — 2. *C. murorum.*
    - Hairs subcircinate and swollen at the base. — 3. *C. caninum.*
  - Hairs not circinate.
    - Hairs comparatively few, short (300 μ long). — 4. *C. lanosum.*
    - Hairs numerous, comparatively long (500–1000 μ).
      - Hairs 500–700 μ long, olivaceous. — 5. *C. olivaceum.*
      - Hairs 700–1000 μ long, dark-brown. — 6. *C. Ellisianum.*
  - Hairs irregularly contorted into 6–8 loops, alternate loops being in opposite directions. — 7. *C. crispatum.*
  - Hairs more or less spirally coiled.
    - Hairs irregularly and spirally twisted at the end.
      - Hairs flexuous at the base, usually smooth. — 8. *C. cochliodes.*
      - Hairs straight at the base, incrusted. — 9. *C. spirochaete.*
    - Hairs more or less regularly coiled at the end.
      - Hairs in 1–2 loose spirals, dark-brown. — 10. *C. flexuosum.*
      - Hairs in 5–6 spirals, pale-brown. — 11. *C. bostrychodes.*
    - Hairs in 15–20 spirals. — 12. *C. laterrimum.*

Apical hairs all or partly branched.
- Hairs all branched.
  - Hairs more or less deeply incrusted.
    - Hairs comparatively short (about 475 μ long). — 13. *C. melioloides.*
    - Hairs comparatively long (700–900 μ). — 14. *C. elatum.*
  - Hairs usually smooth or only slightly incrusted. — 15. *C. sphaerospermum.*
- Hairs branched and simple.
  - Hairs more or less deeply incrusted. — 16. *C. setosum.*
  - Hairs smooth or only slightly incrusted. — 17. *C. funicola.*

1. Chaetomium abietinum Ellis & Ev. Bull. Torrey Club 25: 501. 1898.

Perithecia gregarious, ovoid-globose, 350–500 μ in diameter, finally collapsing more or less above, densely clothed above with black, simple, spine-like hairs, 60–75 μ long, 4–5 μ

thick at the base; asci cylindric, short-stipitate, the spore-bearing part 65–75 × 12 μ; spores 1-seriate, globose, subhyaline at first, becoming opaque, 6–10 μ in diameter and only slightly compressed.

On a stick of coniferous wood exposed to the weather.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: Known only from the type locality.

2. **Chaetomium murorum** Corda, Ic. Fung. **1**: 24. 1837.

Perithecia more or less gregarious, dark-brown, membranaceous, subglobose or globose, 150–250 μ in diameter; ostiolum short, papilliform, sometimes collapsing; apical hairs simple, slender, flexuous, often 1 mm. in length, septate, smooth or slightly granular, subhyaline to dark-brown or almost black, 5 μ thick, circinate at the ends; sides of the perithecia more sparingly clothed with finer, subulate hairs, the basal ones longer; asci broad-clavate, short-stipitate; spores more or less ellipsoid, 12–16 × 7–8 μ, pale- to dark-brown.

On dead poplar, on dry grass, and on goat dung.
TYPE LOCALITY: Prague, Bohemia.
DISTRIBUTION: New York to Montana; also in Europe.
ILLUSTRATIONS: Corda, Ic. Fung. 1: *pl. 7, f. 293, B*; 2: *pl. 13, f. 103*; Nova Acta Acad. Leop.-Carol. 42: *pl. 19, f. 13–20*.

3. **Chaetomium caninum** Ellis & Ev. Jour. Myc. **4**: 79. 1888.

Perithecia densely gregarious, cinereous, thin, membranaceous, ovoid, 250 × 220 μ, rather coarsely cellular, clothed with light-gray, muricately-roughened, rather distantly septate hairs which are much longer and denser above (300–400 μ), with tips subcircinately involute and bases slightly swollen; hairs around the apex diverging to show the black papilliform ostiolum; asci clavate, with slender base, the spore-bearing part 20–24 × 8–9 μ, 8-spored; spores short, lemon-shaped, scarcely apiculate, 5–7 × 4–5 μ, mostly 5–6 × 4.5 μ, smoky-hyaline, subolivaceous in the mass.

On dog dung.
TYPE LOCALITY: St. Martinsville, Louisiana.
DISTRIBUTION: Known only from the type locality.

4. **Chaetomium lanosum** Peck, Ann. Rep. N. Y. State Mus. **28**: 64. 1876.

Perithecia scattered or gregarious, broad-ovoid to subglobose, 150–250 × 125–200 μ, dark-brown, membranaceous, covered with long hairs; hairs not differentiated, except that the apical ones are longer, extending out 300 μ, remotely or not septate, dingy-olivaceous to subhyaline, slender, 3 μ thick, flexuous, somewhat interwoven and comparatively few in number, not forming the dense mass so often found in the genus; spores 5.5–7 × 4–6 μ, broadly ovoid to subglobose, sometimes slightly apiculate at both ends.

On dampened herbarium paper and specimens of grass.
TYPE LOCALITY: Albany, New York.
DISTRIBUTION: Known only from the type locality.

5. **Chaetomium olivaceum** Cooke & Ellis, Grevillea **6**: 96. 1878.

Perithecia scattered or gregarious, broadly ovoid or ellipsoid, often pointed at the base, 250–300 × 200–250 μ, in fresh condition olivaceous but in dry specimens dark-brown and membranaceous, thickly and evenly clothed with slender, flexuous hairs; apical hairs somewhat coarser than the others, simple, sparingly septate, minutely scabrous, 3–4 μ thick, often 700 μ long, in the fresh condition pale-olivaceous, in dry condition light-brown; asci oblong-clavate, the spore-bearing part 35–40 × 12 μ; spores yellow-brown, globose-ellipsoid, slightly apiculate at both ends, 9–12 × 8–9 μ.

On various dead plants, moist wood, rye-straw, paper, pasteboard, etc.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: Maine to Kansas and Texas.
ILLUSTRATION: Grevillea 6: *pl. 100, f. 38*.
EXSICCATI: Ellis, N. Am. Fungi *56*.

6. **Chaetomium Ellisianum** Sacc. & Syd. in Sacc. Syll. Fung. **14**: 491. 1899.

Chaetomium pusillum Ellis & Ev. Proc. Acad. Phila. 1890: 220. 1890. Not *C. pusillum* Fries, 1829.

Perithecia gregarious, black, membranaceous, broadly ovoid to subglobose, 200 × 150 μ,

the lower part clothed with fine, loosely entangled, pale slate-colored, branching hairs; upper part clothed more sparingly with smooth, dark-brown, very slender, flexuous hairs, 4 μ broad at the base and tapering gradually to the end, often 700–1000 μ long, rarely branching, continuous or remotely septate; asci narrow-cylindric, 30 × 3.5 μ; spores 1-seriate, broadly ellipsoid to subglobose, 4.5–6 × 3.5–4.5 μ.

On hickory barrel-hoop, basswood bottom of barrel, and an old churn.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: New Jersey and Kansas.
ILLUSTRATION: Ellis & Ev. N. Am. Pyrenom. *pl. 16, f. 1–6.*
EXSICCATI: Ellis & Ev. N. Am. Fungi *2350.*

7. **Chaetomium crispatum** Fuckel, Symb. Myc. 90. 1869.

Sphaeria crispata Fuckel, Fungi Rhen. *2022.* 1867.
Chaetomium contortum Peck, Ann. Rep. N. Y. State Mus. 49: 24. 1897.

Perithecia more or less gregarious, broadly ovoid or subglobose, reaching a height of 400 μ, membranaceous, dark-brown, thickly clothed with hairs; lateral and basal hairs smooth, septate, slender, pale-brown; apical setae forming a dense, black, spherical mass 700 μ in diameter above the perithecium, rigid, densely and minutely incrusted, light-brown and distinctly septate at the base, gradually becoming darker toward the tip which is dark-brown, 11 μ thick, indistinctly septate, and irregularly contorted into 6–8 loops, alternate loops being in opposite directions; asci stipitate, the spore-bearing part 82–100 × 10 μ; paraphyses simple, elongate-clavate; spores 1-seriate, globose or globose-ovoid, apiculate at both ends, 12–13 × 9–11 μ, subhyaline or fuscous at maturity.

On bulbs of *Lilium longiflorum* Thunb.; these are said to have been imported from Japan, and the fungus may have been brought with them.
TYPE LOCALITY: Germany.
DISTRIBUTION: New Jersey; also in Europe.
ILLUSTRATIONS: E. & P. Nat. Pfl. 1[1]: *f. 252, G;* Nova Acta Acad. Leop.-Carol. 42: *pl. 20, f. 1–13.*

8. **Chaetomium cochliodes** Palliser, sp. nov.

Perithecia scattered or gregarious, broadly ovoid to subglobose, 300–400 μ in diameter, thin, membranaceous, dark-brown, thickly clothed with hairs; lateral and basal hairs pale-brown, septate, slender, not exceeding 4 μ in thickness even at the base, and gradually tapering toward the end; apical hairs extremely flexuous, almost from the base, at the end becoming irregularly spirally curved, usually smooth but occasionally minutely scrabrous at the base, numerous, often forming a densely interwoven mass extending 700 μ above the perithecium; spores subhyaline to pale-brown, broadly ovoid to subglobose, sometimes scarcely apiculate at the ends, 9–11 × 8–10 μ.

On exposed paper, dried hay, old mat, basket, paper in *Mucor* culture, etc.
Type collected on paper exposed to the weather, Newfield, New Jersey, October, 1880 (Ellis & Ev. N. Am. Fungi *1541,* in part).
DISTRIBUTION: New Jersey to Louisiana.
EXSICCATI: Ellis & Ev. N. Am. Fungi *1541,* in part (as *C. Chartarum*).

9. **Chaetomium spirochaete** Palliser, sp. nov.

Perithecia more or less gregarious, broadly ellipsoid, 300 × 225 μ, thin, brittle, dark-brown, often appearing black, thickly clothed with hairs; basal and lateral hairs remotely septate, smooth, brown, flexuous, 3 μ thick; apical hairs numerous, often forming a densely-entangled, dark spherical mass 800 μ in diameter, straight for about 350 μ from the base, then becoming extremely flexuous or irregularly spirally twisted several times, dark-brown, at the base 4–5 μ thick, more or less thickly incrusted, toward the end becoming paler and less incrusted, although scabrous throughout; spores subhyaline to brown, broadly ovoid, slightly apiculate at either end, 7–11 × 6–9 μ.

On moist decayed paper and cotton root in moist chamber.
Type collected on cotton root kept in a moist chamber, Ames, Iowa, June, 1890, *L. H. Pammel* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: New Jersey to Iowa.

10. **Chaetomium flexuosum** Palliser, sp. nov.

Perithecia scattered or gregarious, broadly ellipsoid or ovoid, 300–400 × 225–350 μ, thin, membranaceous, dark-brown to black, clothed on all sides with hairs; basal and lateral

hairs long, slender, flexuous, pale-brown; apical hairs comparatively few in number, 500 μ long, 4–6 μ thick at the base, gradually tapering toward the end, remotely septate, dark-brown at the base, paler above, scabrous throughout but especially at the base, straight for most of their length but toward the end twisting into a loose spiral once or twice; spores brown, broadly ovoid or subglobose, somewhat apiculate at both ends, 9–11 × 7–9 μ.

On an old basket, dead wood, and barley.
Type collected on an old basket found in the woods, Ann Arbor, Michigan, March 10, 1894, *L. N. Johnson 1562* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: New York to Michigan.

11. **Chaetomium bostrychodes** Zopf, Sitz.-ber. Bot. Ver. Prov. Brand. **19**: 173. 1878.

Perithecia more or less scattered, relatively small, broadly ovoid or subglobose, thin, membranaceous, 225–350 × 150–225 μ, grayish in fresh condition, darker and browner when dried; lateral and basal hairs slender, flexuous, smooth or slightly incrusted, septate, yellow-brown; apical hairs pale-brown, 4 μ thick, extending about 450 μ above the perithecium, slightly incrusted or sometimes smooth, remotely septate, coiling at the end 5–6 times in a more or less regular spiral 18–36 μ in diameter; asci clavate, small, 50 × 12 μ with a rather short stipe; spores broadly ellipsoid, almost globose, sometimes slightly apiculate, 6–7.5 × 5–6 μ, pale olive-brown.

On dog dung, sheep dung, old shoe, potatoes, and decaying portions of animals.
TYPE LOCALITY: Berlin, Germany.
DISTRIBUTION: New York to Louisiana; also in Europe.
ILLUSTRATION: Nova Acta Acad. Leop.-Carol. **42**: *pl. 20, f. 14–26.*

12. **Chaetomium aterrimum** Ellis & Ev. sp. nov.

Perithecia scattered, loosely attached, black, ovoid or subglobose, 275 μ high, perforated at the apex, thin, membranaceous, densely clothed with hairs; lateral and basal hairs numerous, smooth or slightly incrusted, flexuous, light-brown, septate, in dried specimens breaking off close to the perithecium; apical setae dark-brown, gradually becoming almost black toward the end, thickly incrusted, 6 μ thick at the base, straight for 120–180 μ, then coiling 10–15 times in a close, regular spiral 400–450 μ long and 50–60 μ in diameter; setae at the tip 10–12 μ thick; spores yellow-brown, ellipsoid, slightly apiculate at both ends, 6–7.5 × 4–5 μ.

On damaged wheat.
Type collected on damaged wheat in a stack, Rockport, Kansas, December 21, 1891, *Elam Bartholomew 448* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Known only from the type locality.

13. **Chaetomium melioloides** Cooke & Peck; Peck, Ann. Rep. N. Y. State Mus. **27**: 106. 1875.

Perithecia scattered, small, globose, 175–190 μ in diameter, dark-brown, thickly clothed with hairs; apical hairs branched 2–4 times more or less regularly dichotomously, black up to the last divarication above which they become brown, 6–8 μ wide, 475 μ long, rigid, thickly incrusted; near the apex of the perithecium are a few hairs, dark-brown, slightly incrusted, more slender and of lighter color than the others, ramifying in numerous, short, irregular branches, which never extend so high as the first; spores obovoid to globose, scarcely apiculate, 5–6 × 4.5–5 μ, pale olivaceous-brown.

On old stems of *Zea Mays* L.
TYPE LOCALITY: North Greenbush, New York.
DISTRIBUTION: New York and New Jersey.

14. **Chaetomium elatum** Kunze; Schmidt & Kunze, Deuts. Schwämme **8**: 3. 1818.

Chaetomium pannosum Wallr. Fl. Crypt. Germ. **2**: 267. 1833.
Chaetomium glabrescens Ellis & Ev. Proc. Acad. Phila. **1893**: 130. 1893.

Perithecia densely gregarious, or scattered and simple, subglobose or ovoid, sometimes of a somewhat turbinate form, 350–375 × 300–350 μ wide, dark-brown to black, brittle and

easily crushed, thickly clothed with hairs; lateral hairs few, mostly simple, short, smooth or slightly incrusted, hyaline to light-brown; basal rhizoids numerous, flexuous, slender, 3 μ wide, remotely septate, pale reddish-brown to dark-brown; apical hairs consisting of rough, deeply incrusted bristles, 9 μ thick at the base, gradually tapering toward the end, often forming a black, spherical mass 900 μ in diameter, more or less irregularly or dichotomously branched at the end usually 2–4 times, terminal branches being often 350 μ long; branches black or dark-brown and incrusted at the base, gradually becoming paler and smoother, until at the tip they are hyaline and entirely smooth or only slightly incrusted, non-septate, in dried specimens the delicate terminal branches usually crushed or broken off abruptly; spores ellipsoid, apiculate at both ends, 10–14 × 8–10 μ, usually 12 × 9 μ, hyaline to olivaceous-brown.

On packing straw, maple log, Indian corn, decaying cottonwood stick, barrel stave, manure, straw hat, dead petioles of *Washingtonia*, dead grass, etc.
TYPE LOCALITY: Germany.
DISTRIBUTION: United States and Canada; also in Europe.
ILLUSTRATIONS: Nova Acta Acad. Leop.-Carol. **42**: *pl. 17, f. 14–26; pl. 18, f. 1–11;* Grev. Scot. Crypt. Fl. *pl. 230.*
EXSICCATI: Ellis, N. Am. Fungi *560;* Ellis & Ev. N. Am. Fungi *1541* (in part); Ellis & Ev. Fungi Columb. *621;* C. Baker, Pacif. Slope Fungi *78.*

15. **Chaetomium sphaerospermum** Cooke & Ellis, Grevillea **8**: 16. 1879.

Ascotricha Chartarum Berk. Ann. Nat. Hist. 1: 257. 1838. Not *Chaetomium Chartarum* Ehrenb. 1818.

Perithecia scattered or gregarious, broadly ovoid to subglobose, 140–220 × 128–200 μ, black, thin, membranaceous; basal and lateral hairs few, short, dark-brown, slender; apical hairs arising from the extreme apex, 500 μ long, 4–6 μ thick at the base, gradually becoming paler toward the end, branched divaricately 2–3 times, the main axis of the hair being prolonged at the point of bifurcation 15–20 μ, the prolongation being hyaline and inflated; spores more or less subglobose, not apiculate at the ends, from the front 7–9 × 3 μ, dark-brown; conidia subhyaline to pale-brown, subglobose, 3–3.5 μ.

On barrel bottom and old paper.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: New York and New Jersey.
ILLUSTRATION: Ann. Nat. Hist. 1: *pl. 7, f. 8.*

16. **Chaetomium setosum** Wint. Hedwigia **26**: 16. 1887.

Chaetomium indicum Zopf, Nova Acta Acad. Leop.-Carol. **42**: 279. 1881. Not *C. indicum* Corda, 1840.

Perithecia scattered or gregarious, broadly ellipsoid, 180–200 × 145–160 μ, clothed on all sides with hairs; basal rhizoids long, 3 μ wide, slender, flexuous, dark-brown, remotely septate; lateral hairs like basal but less numerous; apical hairs of two kinds, branched and simple; simple hairs lanceolate, black and rough at the base, gradually becoming paler and smoother, 6 μ thick at the base, tapering toward the end, extending 400–500 μ above the perithecium; branched hairs dark-brown, deeply incrusted, like the lanceolate hairs at the base, simple for 175–185 μ, then branching dichotomously several times, more or less regularly, becoming gradually more slender, paler and less rough, in maturity forming a tangled, spherical mass, often 600 μ in diameter; in the young condition the branched hairs are overtopped by the lanceolate bristles, but at maturity the latter are often almost entirely concealed by the former; spores small, ellipsoid, 5–6 × 3–4.5 μ, pale olivaceous-brown.

On dead *Zea Mays* L., decaying cypress pickets, cotton plug, and branches of *Berberis.*
TYPE LOCALITY: Patagonia.
DISTRIBUTION: Louisiana to New York; also in South America and Europe.

17. **Chaetomium funicola** Cooke, Grevillea **1**: 176. 1873.

Chaetomium setosum Ellis & Ev. Am. Nat. **31**: 340. 1897. Not *C. setosum* Wint. 1887.
Chaetomium Bartholomaei Sacc. & Syd. in Sacc. Syll. Fung. **14**: 490. 1899.

Perithecia more or less scattered, small, broadly ovoid, about 150–110 μ, dark-brown,

clothed on all sides with hairs; lateral hairs simple, comparatively short, smooth; rhizoids slender, pale-brown, flexuous; apical hairs of two kinds, simple and branched; simple hairs lanceolate, extending 375 μ above the perithecium, smooth or nearly so, dark-brown or almost black at the base, gradually tapering to a point and becoming paler at the tip; branching hairs few in number or forming a mass 180 μ above the perithecium, subhyaline or pale-brown to dark-brown, sometimes incrusted, usually smooth, with numerous ramifications, sometimes regularly dichotomous, more often irregularly branched; branches short, 15–20 μ; spores small, broadly obovoid, scarcely apiculate, 4.5–6 $\times$ 3–4.5 μ.

On old broom, straw, and damaged hay.
TYPE LOCALITY: Albany, New York.
DISTRIBUTION: New York to Kansas.

DOUBTFUL SPECIES

Chaetomium Douglasii Schw. Trans. Am. Phil. Soc. II. 4: 265. 1832. Perithecia with a dense olivaceous-greenish tomentum, very floccose, but not interwoven, springing from all sides but especially from the apex; perithecia densely aggregate, black-sooty, rather large, globose-ovoid, fragile, umbilicate at the apex; the tomentum arises to more than twice the height of the perithecia. On stems of *Hyssopus anisatus* Nutt.; in the vicinity of Lake Huron.

Chaetomium Typhae Schw. Trans. Am. Phil. Soc. II. 4: 265. 1832. Perithecia very minute, black, punctiform, enveloped in hairs so minute that they are scarcely discernible except when magnified; situated between the veins of leaves. On leaves of *Typha;* Bethlehem, Pennsylvania.

Chaetomium velutinum Ellis & Ev. Jour. Myc. 1: 90. 1885. Perithecia ovoid, membranaceous, gregarious, even more or less confluent, covered with a dense, even, velvety coat of rough, olive-black hairs of which the apical ones are nearly straight and coarser, while those toward the base are finer and somewhat branched; spores almond-shaped, brown, 11–12 $\times$ 6–7 μ; asci were already dissolved so that their shape could not be seen; the general aspect is that of *Sphaeria hirsuta* Fries, but the hairy coat is more dense and even. On damp maple log.

Chaetomium pallidum Ellis & Ev. Proc. Acad. Phila. 1894: 326. 1894. This appears to be a *Melanospora*.

Family 2. FIMETARIACEAE[1]

By David Griffiths and Fred Jay Seaver

Perithecia superficial or deeply sunken in the substratum, and often erumpent at maturity, thin and membranaceous to coriaceous, slightly transparent to black and opaque; usually without a stroma, but, if with stroma, the perithecia sunken with projecting papilliform beaks. Asci usually very delicate, surrounded by long paraphyses or intermingled with them. Spores usually dark-colored, simple or compound, surrounded by a hyaline gelatinous envelope or ornamented with hyaline gelatinous apiculi. Plants entirely saprophytic and generally growing on dung.

Stromata absent.
- Spores simple (except *Pleurage zygospora*).
  - Ascus perforate; spores partially or entirely surrounded by a hyaline, gelatinous envelope. — 1. Fimetaria.
  - Ascus not perforate, but opening by the breaking off of the inelastic ascus apex; spores ornamented by secondary, gelatinous appendages, with or without primary ones. — 2. Pleurage.
- Spores compound.
  - Spores 2-celled. — 3. Delitschia.
  - Spores 4–many-celled. — 4. Sporormia.

Stromata present; spores compound. — 5. Sporormiella.

1. FIMETARIA Griffiths & Seaver.

Sordaria Ces. & De-Not. Comm. Critt. Ital. 1: 225, in part. 1863.

Perithecia scattered or aggregated, superficial or sunken, membranous or coriaceous, dark and opaque; asci with an apical perforation and stretching at maturity; spores simple, usually dark-brown and wholly or partially surrounded by a gelatinous hyaline fugacious envelope.

Type species, *Sphaeria fimicola* Roberge.

Perithecia not hairy or bristly.
- Perithecia coriaceous. — 1. *F. bombardioides.*
- Perithecia membranaceous.
  - Spores subglobose, small, $5 \times 8\,\mu$. — 2. *F. minima.*
  - Spores ellipsoid.
    - Spores large, $15–18 \times 25–34\,\mu$, rounded at both ends. — 3. *F. macrospora.*
    - Spores smaller, $11–13 \times 16–23\,\mu$, acutely rounded below. — 4. *F. fimicola.*
  - Spores obovoid, acutely rounded below. — 5. *F. humana.*

Perithecia hairy or bristly.
- Asci 8-spored.
  - Beak long and hairy.
    - Spores with apiculus at each end. — 6. *F. montanensis.*
    - Spores with apiculus at lower end only. — 7. *F. alpina.*
  - Beak papilliform, conic, or wanting.
    - Hyaline envelope surrounding lower third of spore only. — 8. *F. seminuda.*
    - Hyaline envelope surrounding entire spore.
      - Spores conspicuously flattened, comparatively large. — 9. *F. discospora.*
      - Spores ellipsoid to subglobose, comparatively small. — 10. *F. leucoplaca.*
- Asci 32-spored. — 11. *F. philocoproides.*

1. Fimetaria bombardioides (Auersw.) Griffiths & Seaver.

Sordaria bombardioides Auersw.; Niessl, Verh. Nat. Ver. Brünn 10^2: 187. 1872.
Hypocopra bombardioides Sacc. Syll. Fung. 1: 243. 1882.

Perithecia superficial, crowded and confluent at the base, 0.5 mm. wide by 1 mm. long, thick, coriaceous, chestnut-brown to black, ovoid, oblong, or pyriform, broadly rounded above, and terminating in a small papilliform ostiolum; asci 8-spored, cylindric, broadly rounded

[1] To take the place of Sordariaceae.

above and tapering below into a short stipe, 20–30 × 150–210 μ; paraphyses filiform, septate, agglutinate, longer than the asci; spores obliquely 1-seriate, ovoid, broadly rounded at the ends and often inequilateral, 12–14 × 26–34 μ, ranging from hyaline when young through yellow to dark-brown and opaque, with the hyaline envelope prominent and swelling greatly when placed in water.

Type on rabbit dung; American specimens on dung of horses and cows.
TYPE LOCALITY: Leipzig, Germany.
DISTRIBUTION: Michigan to Montana and California; also in Europe.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 4, f. 4–7.*

2. **Fimetaria minima** (Sacc. & Speg.) Griffiths & Seaver.

Sordaria minima Sacc. & Speg.; Sacc. Michelia 1: 373. 1878.
Hypocopra minima Sacc. Syll. Fung. 1: 244. 1882.

Perithecia scattered, superficial or more often with sunken base, 100–150 × 150–180 μ, thin, membranaceous, dark-brown to black with cellular structure usually invisible, pyriform to conic with papilliform to blunt and truncate beak; exposed portion covered with minute papillae; asci 8-spored, cylindric, broadly rounded to truncate and perforate above, and slightly contracted below into a short blunt stipe, 5–8 × 60–85 μ; paraphyses filiform but wide in comparison with the ascus, septate, equal to the ascus or slightly longer; spores 1-seriate, ellipsoid to subglobose, prominently 2-guttulate when young but becoming indistinctly so at maturity and entirely homogeneous in age, hyaline when young, varying through olivaceous to dark-brown and opaque, varying but little from 5 × 8 μ.

Type on cow dung; American specimen on goat dung.
TYPE LOCALITY: Italy.
DISTRIBUTION: New Jersey; also in Europe.
ILLUSTRATIONS: Mem. Torrey Club 11: *pl. 3, f. 25–27;* Sacc. Fungi Ital. *pl. 617.*

3. **Fimetaria macrospora** (Auersw.) Griffiths & Seaver.

Sordaria macrospora Auersw.; Rab. Fungi Eur. *954.* 1866.—Hedwigia 5: 192. 1866.
Hypocopra macrospora Sacc. Syll. Fung. 1: 241. 1882.
Pleurage macrospora Kuntze, Rev. Gen. 3³: 505. 1898.

Perithecia scattered and sunken with a short papilliform to enlarged globose, naked beak, about 350 × 550 μ, pyriform, thin, membranaceous, black; asci 8-spored, cylindric, broadly rounded above and contracted below into a long stout stipe, persistent, 255–280 × 20–25 μ; paraphyses abundant, ventricose, agglutinate, longer than the asci but not mixed with them; spores obliquely 1-seriate, ellipsoid, broadly rounded at the ends, 15–18 × 25–34 μ, with the hyaline envelope prominent and swelling greatly in water.

On dung of rabbits, mice, horses, and sheep.
TYPE LOCALITY: Europe.
DISTRIBUTION: Texas; also in Europe.
ILLUSTRATIONS: Mem. Torrey Club 11: 45, *f. 2;* Verh. Nat. Ver. Brünn 10²: *pl. 6, f. 43.*

4. **Fimetaria fimicola** (Roberge) Griffiths & Seaver.

Sphaeria fimicola Roberge; Desmaz. Ann. Sci. Nat. III. 11: 353. 1849.
Sordaria fimicola Ces. & De-Not. Comm. Critt. Ital. 1: 226. 1863.
Sphaeria equina Fuckel, Fungi Rhen. *1802.* 1866.
Hypocopra fimicola Sacc. Syll. Fung. 1: 240. 1882.
Sordaria iowana Ellis & Holway; Ellis & Ev. Jour. Myc. 4: 65. 1888.
Hypocopra iowana Sacc. Syll. Fung. 9: 490. 1891.
Sordaria ostiolata Ellis & Ev. Bull. Torrey Club 24: 458. 1897.

Perithecia scattered, or aggregate into a layer which forms a complete covering for the substratum, usually sunken at first and erumpent later, or superficial from the first, 240–300 × 325–525 μ, thin, membranaceous, with cellular structure usually plainly visible, hyaline when young, ranging through greenish to dark-brown or black, pyriform with papilliform or slightly elongate black beak which may be smooth or slightly roughened with minute papillae; asci 8-spored, cylindric, broadly rounded to truncate, perforate at the apex and tapering below into a short blunt stipe-like base, 16–19 × 140–160 μ, rather persistent; paraphyses ventricose, agglutinate, longer than the asci; spores obliquely 1-seriate, ellipsoid, rounded at the ends, but evidently more acutely so below, 11–13 × 16–23 μ; germpore apical, circular and situated in the lower more acutely rounded end of the spore;

hyaline envelope not surrounding the entire spore but having its edges attached around the germ-pore, which it does not inclose on stretching.

On dung of horses, cows, goats, rabbits, sheep, and deer; also on old paper.
TYPE LOCALITY: France.
DISTRIBUTION: Vermont to Oregon, Arizona, and Alabama; also in Europe.
ILLUSTRATIONS: Mem. Torrey Club 11: *pl. 3, f. 19–21; pl. 4, f. 8–10.*
EXSICCATI: Ellis & Ev. N. Am. Fungi *2550, 2749.*

5. **Fimetaria humana** (Fuckel) Griffiths & Seaver.

Sphaeria humana Fuckel, Fungi Rhen. *1801.* 1866.
Hypocopra humana Fuckel, Symb. Myc. 241. 1869.
Sordaria humana Wint. Bot. Zeit. 30: 835. 1872.
Sordaria sphaerospora Ellis & Ev. N. Am. Pyrenom. 128. 1892.
Hypocopra sphaerospora Sacc. Syll. Fung. 11: 280. 1895.

Perithecia scattered and sunken, with projecting papilliform beaks, or aggregate in solid clusters and erumpent in such a way as to be completely exposed at maturity, about 350 × 600 μ, thin, membranaceous, dark-brown to black, pyriform with papilliform to slightly cylindric beak; asci 8-spored, cylindric, broadly rounded to truncate above and tapering below into a short blunt stipe, quite persistent, 17–19 × 160–200 μ; paraphyses large, ventricose, longer than the asci and not much mixed with them; spores obliquely 1-seriate, obovoid, broadly rounded above and acutely so below, 14–18 × 21–23 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; hyaline envelope becoming very prominent in water and covering the entire spore except the circular germ-pore at lower end of the spore, around which it appears firmly attached.

On human dung, and on dung of dogs, cows, goats, and pigs.
TYPE LOCALITY: Europe.
DISTRIBUTION: New York to Louisiana and South Dakota; also in Europe.
ILLUSTRATIONS: Mem. Torrey Club 11: *pl. 3, f. 16–18; pl. 4, f. 14–16.*

6. **Fimetaria montanensis** (D. Griff.) Griffiths & Seaver.

Sordaria montanensis D. Griff. Mem. Torrey Club 11: 49. 1901.
Hypocopra montanensis Sacc. Syll. Fung. 17: 605. 1905.

Perithecia scattered, sunken, 450–600 × 750–900 μ, thin, membranaceous, dark-brown to black in color, subglobose to ovoid with a long black cylindric projecting beak; all exposed portions, especially the beak, densely covered with short straight acuminate sparingly septate hairs of approximately equal length, these becoming gradually changed into the long flexuous rhizoids which cover the sunken portions of the perithecium; asci 8-spored, cylindric, rounded or truncate and perforate at the apex, and tapering below into a long stout stipe, quite persistent, 29–32 × 340–400 μ; paraphyses filiform, septate, slightly longer than the asci; spores obliquely 1-seriate, ellipsoid, broadly rounded at the ends, 24–27 × 45–51 μ, tipped below by a broad, conspicuous, hyaline apiculus, and at the apex by a very much smaller inconspicuous one; the spore and its apiculus surrounded by a hyaline envelope which becomes very wide and conspicuous when mounted in water.

On dung of horses and cows.
TYPE LOCALITY: (Grown on material from) Missoula, Montana.
DISTRIBUTION: Montana.
ILLUSTRATIONS: Mem. Torrey Club 11: *pl. 3, f. 1–3; pl. 19, f. 13.*

7. **Fimetaria alpina** (D. Griff.) Griffiths & Seaver.

Sordaria alpina D. Griff. Mem. Torrey Club 11: 49. 1901.
Hypocopra alpina Sacc. Syll. Fung. 17: 605. 1905.

Perithecia sunken, scattered, or aggregate in small clusters, pyriform, thin, membranaceous, olivaceous below but black in all exposed portions, about 0.5 × 1 mm., the black projecting long stout cylindric beak, as well as all exposed portions of the perithecium, densely and uniformly covered with rather short, stout, abundantly septate, brown, hyaline-tipped, straight hairs; asci 8-spored, cylindric, slightly contracted and rounded above and gradually narrowed below into a long slender straight, curved, or crooked stipe, 18–20 × 270–350 μ, persistent; paraphyses abundant, septate, often slightly constricted at lower septa, mixed with and much longer than the asci; spores 1-seriate, ellipsoid, rounded at both ends, ranging from hyaline when young through olivaceous to dark-brown and

opaque, 12–14 × 20–37 μ, with a minute hyaline apiculus at lower end of each spore; hyaline envelope narrow and swelling but slightly in water.

On the dung of horses and cows.
TYPE LOCALITY: (Grown on material from) Summit, Montana.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 19, f. 4–6.*

8. **Fimetaria seminuda** (D. Griff.) Griffiths & Seaver.

Sordaria seminuda D. Griff. Mem. Torrey Club 11: 50. 1901.
Hypocopra seminuda Sacc. Syll. Fung. 17: 606. 1905.

Perithecia sunken, scattered or aggregate in small clusters, pyriform, thin, membranaceous, olivaceous below but black in all exposed portions, 300–400 × 500–600 μ, the black papilliform projecting beak and all exposed portions covered with short, straight, brown, hyaline-tipped hairs arranged in small groups or uniformly scattered; asci 8-spored, cylindric, broadly rounded and perforated above and contracted below into a long, crooked stipe, 180–200 × 12–14 μ, rather persistent; paraphyses filiform, septate, persistent, not numerous, seldom exceeding the asci in length; spores obliquely or vertically 1-seriate, ellipsoid or often ovoid, broadly rounded above but more acutely so below, 10–12 × 16–22 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; lower end of spore tipped with a short, hyaline, cylindric apiculus which is surrounded by a triangular hyaline envelope extending over the lower third of the spore.

On dung of horses.
TYPE LOCALITY: Summit, Montana.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 19, f. 10–12.*

9. **Fimetaria discospora** (Auersw.) Griffiths & Seaver.

Sordaria discospora Auersw.; Niessl, Verh. Nat. Ver. Brünn 10²: 192. 1872.
Hypocopra discospora Fuckel, Jahrb. Nass. Ver. Nat. 27–28: 43. 1873.
Sordaria platyspora Phill. & Plow. Grevillea 6: 28. 1877.
Hypocopra platyspora Sacc. Syll. Fung. 1: 241. 1882.

Perithecia scattered, usually sunken, 220–270 μ in diameter, thin, membranaceous and often quite brittle, dark-brown to black and opaque, subglobose to pyriform, with a short, papilliform to conic, black beak which is covered like the exposed portions of the perithecium with short, erect, dark-brown or black hairs; asci 8-spored, broadly rounded to truncate and perforate above, and contracted below into a short blunt stipe, 75–130 × 13–21 μ; paraphyses filiform, septate, slightly longer than the asci; spores 1-seriate, flattened, subcircular to broadly elliptic in one view and narrowly elliptic in the other, 8–11 × 10–18 μ, the germ-pore extending nearly the entire length of spore; hyaline envelope prominent when spores have been removed from the ascus.

Type on dung of hare; American specimens on dung of horses and cows.
TYPE LOCALITY: Leipzig, Germany.
DISTRIBUTION: Rhode Island to Montana, Kansas, and Mississippi; also in Europe.
ILLUSTRATIONS: Mem. Torrey Club 11: *pl. 3, f. 4–8;* Grevillea 6: *pl. 94, f. 2.*

10. **Fimetaria leucoplaca** (Berk. & Rav.) Griffiths & Seaver.

Sphaeria leucoplaca Berk. & Rav.; Berk. Grevillea 4: 143. 1876.
Sordaria microspora Phill. & Plow. Grevillea 6: 28. 1877.
Hypocopra microspora Sacc. Syll. Fung. 1: 241. 1882.
Hypocopra leucoplaca Sacc. Syll. Fung. 1: 244. 1882.
Sordaria leucoplaca Ellis & Ev. N. Am. Pyrenom. 127. 1892.

Perithecia scattered, superficial or sunken, 180–250 μ in diameter, membranaceous and often quite brittle, subglobose to pyriform, with usually a short papilliform or conic beak which, together with all exposed portions, is uniformly covered with short, erect, dark-brown or black, septate hairs or bristles; asci 8-spored, cylindric, with a truncate perforate apex and a short contracted stipe, 60–120 × 8–9 μ; paraphyses filiform, obscurely septate and a trifle longer than the asci; spores 1-seriate ellipsoid to subglobose, always rounded at the ends, often slightly flattened, 5–6 × 6.5–9 μ; germ-pore extending along one side nearly the length of the spore; hyaline envelope plainly visible only after the spores have been removed from the ascus.

On dung of horses, cows, and goats.
TYPE LOCALITY: South Carolina.
DISTRIBUTION: Rhode Island to Montana, Colorado, and Alabama.
ILLUSTRATIONS: Grevillea 6: *pl. 94, f. 3*; Mem. Torrey Club 11: *pl. 3, f. 9–15*.
EXSICCATI: Rav. Fungi Car. 4: *61*.

11. Fimetaria philocoproides (D. Griff.) Griffiths & Seaver.

Sordaria philocoproides D. Griff. Mem. Torrey Club 11: 54. 1901.
Philocopra Griffithsii Sacc. Syll. Fung. 17: 607. 1905.

Perithecia scattered, sunken, but becoming more or less superficial with age, subglobose, with small papilliform or indistinct beak, 300–400 μ in diameter, membranaceous, black and opaque, covered on all exposed portions with short, stiff, dark-brown to black, pointed, continuous hairs; asci 32-spored, cylindric to clavate, broadly rounded and simply perforate above, and contracted below into a short, blunt stipe, 13–20 $\times$ 90–110 μ; paraphyses filiform, septate, a little longer than the asci; spores in 2–4 series, slightly flattened, broadly elliptic to subcircular in one view and narrowly elliptic in the other, broadly rounded at the ends, 5.5–8 $\times$ 8 μ; hyaline envelope rather indistinct and very narrow.

On rabbit dung.
TYPE LOCALITY: Fort Lee, New Jersey.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 4, f. 17–19*.

DOUBTFUL SPECIES

Sordaria hippica (Sacc.) Ellis & Ev. N. Am. Pyrenom. 127. 1892. *Hypoxylon equinum* Berk. & Rav.; Berk. Grevillea 4: 93. 1876. *Hypocopra hippica* Sacc. Syll. Fung. 1: 247. 1882. Perithecia springing from a thin effuse white mycelium; ostiola black, papilliform; spores short-cymbiform, 15 μ long. On horse dung; South Carolina (Ravenel). This is a very doubtful species, but as the description is very meager and the original specimen can not be found, no positive statement can be made concerning it.

Sordaria? hyalina D. Griff. Mem. Torrey Club 11: 49. 1901. Perithecia small, scattered, sunken, subglobose, about 150 μ in diameter, thin, membranaceous, brown, smooth, with cellular structure plainly visible; beak papilliform or entirely wanting, when the ostiolum is simply an opening in the top of the subglobose perithecium; asci 8-spored, cylindric, broadly rounded or truncate, and perforate above, and contracted below into a stipe of medium length, very numerous and quite persistent, 5–6 $\times$ 45–55 μ; paraphyses absent; spores obliquely 1-seriate, ellipsoid, broadly rounded at the ends, hyaline, 2.5–3 $\times$ 4.5–5 μ; hyaline envelope very narrow. On dung of horses, cows, and goats, New York to South Dakota and Mississippi.

2. PLEURAGE Fries, Summa Veg. Scand. 418. 1849.

Schizothecium Corda, Ic. Fung. 2: 29. 1838. Not *Schizotheca* Ehrenb. 1832.
Podospora Ces.; Klotzsch, Herb. Viv. Myc. ed. 2. *259*. 1856. — Bot. Zeit. 14: 429. 1856.
Malinvernia Rab. Hedwigia 1: 116. 1857.
Cercophora Fuckel, Symb. Myc. 244. 1869.
Philocopra Speg. Anal. Soc. Ci. Argent. 9: opp. 193, hyponym. 1880; 12: 107. 1881.
Eusordaria Zopf, Zeits. Naturw. 56: 542. 1883.

Perithecia scattered or aggregate, superficial or sunken, membranaceous or coriaceous, without stroma; asci without an apical perforation, stretching at maturity; paraphyses ventricose or filiform-tubular, usually agglutinate and longer than the asci; spores ellipsoid, with or without primary appendages, but always having attached to them at maturity 2 or more hyaline, gelatinous, secondary appendages of variable length.

Type species, *Schizothecium fimicola* Corda.

Asci 4-spored.
- Perithecia smooth above the substratum. — 1. *P. anomala*.
- Perithecia hairy above the substratum.
  - Primary appendages of spores absent. — 2. *P. arizonensis*.
  - Primary appendages of spores reduced to a small triangular apiculus. — ♀ *P. taenioides*.
  - Primary appendages of spores elongate and cylindric.
    - Hairs of the perithecium long, dark-brown, sparingly septate and arranged in tufts on the convex side of the curved beak. — 4. *P. anserina*.
    - Hairs of the perithecium consisting of tufts of irregular fuscous cells. — 5. *P. tetraspora*.

Asci 8-spored.
- Primary spore-appendages present.

Perithecia hairy above the substratum.
Hairs agglutinate and consisting of bunches of irregular cells.
Spores 1-seriate. 6. *P. minuta.*
Spores 2-seriate. 7. *P. conica.*
Hairs short, scattered and bristly.
Spores 1-seriate. 8. *P. minor.*
Spores 2-seriate.
Primary appendage cylindric. 9. *P. amphicornis.*
Primary appendage short, only one third to one half the length of the spore, and often triangular. 10. *P. superior.*
Primary appendage pestle-shaped. 11. *P. fimiseda.*
Hairs consisting of long, flexuous mycelial strands which ramify over the substratum.
Beak absent. 12. *P. erostrata.*
Beak present.
Beak covered with hairs. 13. *P. Ellisiana.*
Beak naked, black.
Spores 1-seriate. 14. *P. arachnoidea.*
Spores 2-seriate.
Spores consisting of a fertile cell at each end of a long, hyaline filament. 15. *P. zygospora.*
Spores simple with usually 4 gelatinous appendages at each end. 16. *P. vestita.*
Hairs branched, roughened and forming a dense, brown felt. 17. *P. californica.*
Perithecia tubercular. 18. *P. striata.*
Perithecia covered with white tomentum. 19. *P. albicans.*
Perithecia naked above the substratum.
Spores completely covered by secondary appendages. 20. *P. longicaudata.*
Spores with appendages confined to the ends. 21. *P. decipiens.*
Primary spore-appendages absent.
Spores 1-seriate.
Perithecia hairy. 22. *P. kansensis.*
Perithecia smooth. 23. *P. Brassicae.*
Spores 2-seriate. 24. *P. multicaudata.*
Asci more than 8-spored.
Perithecia hairy above the substratum.
Perithecia covered with tomentum of roughened hairs. 25. *P. lutea.*
Perithecia hairy but not tomentose and having no roughened hairs.
Primary spore-appendages absent. 26. *P. heterochaeta.*
Primary spore-appendages present.
Hairs short, forming tufts of irregular cells. 27. *P. dakotensis.*
Hairs long and single.
Hairs straight and more or less clustered. 28. *P. curvicolla.*
Hairs flexuous and similar to the mycelium. 29. *P. collapsa.*
Perithecia naked above the substratum.
Secondary spore-appendages prominent and easily distinguishable at maturity. 30. *P. pleiospora.*
Secondary spore-appendages indistinct at maturity and very fugacious. 31. *P. adelura.*

1. **Pleurage anomala** D. Griff. Mem. Torrey Club **11**: 56. 1901.

Sordaria anomala Sacc. Syll. Fung. **17**: 603. 1905.

Perithecia half sunken or entirely superficial and imbedded in a dense growth of greenish or brownish mycelium which is attached to the perithecium especially around the center, membranaceous, black above and dark-brown below, about 300 × 500 μ, pyriform, with a papilliform, curved, black beak; asci 4-spored, cylindric, broadly rounded above, and tapering below into a slender stipe, 18–21 × 165–190 μ; paraphyses agglutinate, ventricose, longer than the asci; spores 1-seriate, ellipsoid to subglobose, rounded above and broadly rounded to truncate below, 13–16 × 18–21 μ, dark-brown in color; primary appendage nearly equaling the spore in length, cylindric, straight or slightly curved, tipped as is also the apex of the spore with long, lash-like, gelatinous, secondary appendages of variable length.

On cow dung.
TYPE LOCALITY: In greenhouse, New York City.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club **11**: *pl. 5, f. 7–9.*

2. **Pleurage arizonensis** D. Griff. Mem. Torrey Club **11**: 57. 1901.

Sordaria arizonensis Sacc. Syll. Fung. **17**: 601. 1905.

Perithecia scattered or aggregate in small groups, at first sunken, but becoming half exposed at maturity, 400–600 μ in diameter, membranaceous to slightly coriaceous, black and opaque, globose to pyriform, the exposed portion covered with a white tomentum up to

the short, cylindric or papilliform, black and curved beak, the convex side of which is ornamented with several tufts of long, brown hairs; asci 4-spored, cylindric, slightly contracted and rounded at the apex, and tapering below into a long, slender, crooked stipe, 38–45 × 240–325 μ; paraphyses variable, usually broadly filiform, tapering upward, much longer than the asci, the outer ones decidedly ventricose and somewhat agglutinate; spores vertically 1-seriate, ellipsoid, inequilateral or slightly flattened on one side, broadly rounded at the ends, 21–25 × 45–52 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; primary appendages entirely absent, but both upper and lower ends of the spore tipped with long, lash-like, gelatinous, excentrically attached appendages which are marked longitudinally with a furrow showing them to be made up of 2 closely united filaments.

On dung of sheep and cows.
TYPE LOCALITY: Tucson, Arizona.
DISTRIBUTION: Arizona and New Mexico.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 6, f. 4–6.*

3. **Pleurage taenioides** D. Griff. Mem. Torrey Club **11**: 58. 1901.

Sordaria taenioides Sacc. Syll. Fung. **17**: 602. 1905.

Perithecia scattered, half sunken, or occasionally aggregate in small clusters and erumpent between the fibers of the substratum, about 0.5 × 0.75 mm., slightly olivaceous when young, but becoming black, opaque and slightly coriaceous at maturity, covered uniformly on all exposed portions by short, straight, septate, brown, hyaline-tipped, fugacious hairs, globose to pyriform with a long, cylindric, curved or twisted beak; asci 4-spored, cylindric, broadly rounded above and contracted below into a long, slender, crooked stipe, persistent, 37–45 × 290–360 μ; paraphyses filiform to tubular or even slightly ventricose below, tapering upward, septate, longer than the asci; spores 1-seriate, ellipsoid to ovoid, broadly rounded at the ends, ranging in color from hyaline when young through olivaceous to dark-brown and opaque, 29–32 × 56–62 μ; primary appendage reduced to a minute, hyaline or often slightly colored apiculus at lower end of the spore, the lower secondary appendage gelatinous, very long, attached apically to the spore and inclosing the minute apiculus, easily resolved into 2 closely united portions which appear to lose their individuality distally, more or less of the length being thrown into convolutions resembling segments of the tapeworm; upper appendage slightly smaller than the lower and eccentrically attached.

On dung of horses, cows, rabbits, burros, dogs, and sheep.
TYPE LOCALITY: New York City.
DISTRIBUTION: Rhode Island to South Dakota, Arizona, and Alabama.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 6, f. 1–3.*

4. **Pleurage anserina** (Ces.) Kuntze, Rev. Gen. 3^3: 504. 1898.

Sphaeria anserina Ces.; Rab. Hedwigia 1: 116, as synonym. 1857.
Malinvernia anserina Rab. Hedwigia 1: 116. 1857.
Sordaria anserina Wint. Abh. Nat. Ges. Halle 13: 99. 1873.
Podospora anserina Wint. in Rab. Krypt. Fl. 1^2: 173. 1884.
Sordaria penicillata Ellis & Ev. Jour. Myc. 4: 78. 1888.
Podospora penicillata Ellis & Ev. N. Am. Pyrenom. 131. 1892.

Perithecia usually half sunken but often entirely superficial, scattered uniformly, or aggregate in clusters of 2–6, 300–350 × 400–500 μ, pyriform, black above and greenish below, thin and membranaceous but not transparent; beak papilliform or slightly cylindric, usually curved and bearing several tufts of long, dark-brown, very sparingly septate hairs on the convex surface; asci 4-spored, cylindric, slightly contracted and rounded above, and contracted below into a long, slender, crooked stipe, quite persistent, 17–22 × 200–400 μ; paraphyses filiform or slightly ventricose below, decreasing in diameter upward, 1.5–2 times the length of the ascus; spores 1-seriate, ellipsoid, ranging from hyaline when young through olivaceous to dark-brown and opaque, 18–20 × 34–42 μ, terminated below by a short hyaline primary appendage 1–1.5 times the length of spore, this as well as the apex of the spore terminated by a long, lash-like, gelatinous appendage of variable length, which by proper illumination can be resolved into 2 closely united strands which gradually merge into one another distally.

On dung of horses, cows, sheep, rabbits, and dogs; also on old pasteboard and Chinese mats.
TYPE LOCALITY: Europe.
DISTRIBUTION: Vermont to South Dakota and New Mexico; also in Europe.
ILLUSTRATIONS: Hedwigia 1: *pl. 15, f. 4*; Mem. Torrey Club 11: *pl. 5, f. 4–6.*

5. Pleurage tetraspora (Wint.) D. Griff. Mem. Torrey Club 11: 62. 1901.

Sordaria tetraspora Wint. Hedwigia 9: 161. 1871.

Perithecia superficial, pyriform to conic, scattered, thin, membranaceous, colorless to fuscous and so transparent that the spore-bearing area which occupies rather less than half the length of the perithecium can be readily distinguished by transmitted light, covered with short, septate, agglutinate hairs which are more prominent around the smooth, black, naked, erect or curved beak, 140–180 × 360–510 μ; asci 4-spored, cylindric, rounded above and contracted below into a stipe one-half the length of the spore-bearing portion, 15–18 × 100–110 μ; paraphyses ventricose, longer than the asci, but not much mixed with them; spores 1-seriate, ellipsoid, broadly but acutely rounded, olivaceous to black and opaque when mature, 13–14 × 16–22 μ; primary appendage short, straight or slightly curved and very fugacious; both primary appendage and apex of spore tipped with long, lash-like, gelatinous, secondary appendages which are made up of 2 or more filaments closely united.

Type on dung of mice; American specimens on culms of *Poa* and dung of horses.
TYPE LOCALITY: Germany.
DISTRIBUTION: Montana to Wyoming; also in Europe.
ILLUSTRATION: Bull. Torrey Club 26: *pl. 365, f. 10–12.*

6. Pleurage minuta (Fuckel) Kuntze, Rev. Gen. 3³: 505. 1898.

Sordaria minuta Fuckel, Jahrb. Nass. Ver. Nat. 27–28: 44. 1873.
Podospora minuta Wint. in Rab. Krypt. Fl. 1²: 174. 1884.

Perithecia superficial or with base slightly sunken in the substratum, scattered, 225–300 × 375–525 μ, thin, membranaceous, transparent, covered with bunches of septate, agglutinate hairs which stand erect when young, but become recurved with age, pyriform to conic, colorless to fuscous, the beak short, papilliform, black, with the ostiolum plainly visible; asci 8-spored, cylindric, evanescent, rounded above and contracted below into a short stipe, 16–19 × 130–160 μ; paraphyses ventricose, slightly longer than the asci and not much mixed with them; spores 1-seriate, ellipsoid, broadly but acutely rounded, ranging from hyaline when young through olivaceous to dark-brown and opaque, 13–14 × 15–20 μ; primary appendage cylindric, straight or curved, fugacious and shorter than the spore, both this and the apex of the spore tipped with a long, lash-like, gelatinous filament which on close examination is seen to be made up of 2 united smaller ones.

Type on cow dung; American specimens on dung of horses, cows, goats, sheep, rabbits, and burros.
TYPE LOCALITY: Europe.
DISTRIBUTION: Rhode Island to South Dakota, Arizona, and Alabama; also in Europe.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 7, f. 7–10.*

7. Pleurage conica (Fuckel) Griffiths & Seaver.

Sordaria curvula DeBary, Morph. Phys. Pilze 209, hyponym. 1866.
Cercophora conica Fuckel, Symb. Myc. 245. 1869.
Podospora curvula Wint. in Rab. Krypt. Fl. 1²: 174. 1884.
Pleurage curvula Kuntze, Rev. Gen. 3³: 505. 1898.

Perithecia scattered, with base slightly sunken, or erumpent in clusters between the fibers of the substratum, about 375 × 600 μ, thin, membranaceous, transparent, hyaline to fuscous, all of the exposed portion more or less covered with bunches of agglutinate, obliquely septate, constricted hairs which are more or less prominent around the beak, but diminish in size and prominence downward until they become simple papillae, pyriform-conic with short, black, papilliform beak containing a prominent ostiolum; asci 8-spored, clavate, contracted above, and tapering below into a moderately long, slender stipe, 22–28 × 150–180 μ, evanescent: paraphyses ventricose, agglutinate, longer than the asci and not much mixed with them; spores 2-seriate, ellipsoid to slightly ovoid, ranging from hyaline when young through olivaceous to dark-brown and opaque, 13–16 × 21–25 μ; primary ap-

pendage one-half to two-thirds the length of the spore, cylindric, straight or curved; this as well as the apex of the spore tipped with long, lash-like, gelatinous, secondary appendages, varying in length with the stage of development, the upper being excentrically placed and both being made up of 2 closely united filaments which are plainly distinguishable proximally but which appear gradually to fuse together distally.

On dung of horses, cows, goats, sheep, pigs, and rabbits.
TYPE LOCALITY: Europe.
DISTRIBUTION: New York to Montana, Arizona, and Alabama; also in Europe.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 7, f. 1–6.*

8. **Pleurage minor** (Ellis & Ev.) D. Griff. Mem. Torrey Club 11: 67. 1901.

Podospora minor Ellis & Ev. Am. Nat. 31: 341. 1897.
Sordaria minor Sacc. & Syd. in Sacc. Syll. Fung. 14: 493. 1899.

Perithecia scattered or loosely aggregate, erumpent with simply the base sunken at maturity, pyriform to conic and clothed on all exposed portions except the black, papilliform to conic beak with short, sparingly septate, crooked, brown hairs, about 400 × 500–600 μ thick, coriaceous, black and opaque; asci 3–8-spored, cylindric, rounded above and contracted below into a short, blunt, stipe-like base, evanescent, 20–24 × 170–190 μ; paraphyses filiform above but slightly ventricose below, longer than the asci and not much mixed with them; spores obliquely 1-seriate, ellipsoid to ovoid and irregular in outline, 18–24 × 30–45 μ; primary appendage short, cylindric or clavate, straight or curved, hyaline to brown; secondary appendages long, lash-like and attached to the extremity of the primary and to the apex of the spore, the upper one being the larger and often tinted with brown.

On old cornstalks.
TYPE LOCALITY: Rooks County, Kansas.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 7, f. 14–16.*

9. **Pleurage amphicornis** (Ellis) Kuntze, Rev. Gen. 3³: 505. 1898.

Sphaeria amphicornis Ellis, Bull. Torrey Club 6: 109. 1876.
Sphaeria eximia Peck, Ann. Rep. N. Y. State Mus. 28: 78. 1876.
Podospora amphicornis Ellis & Ev. N. Am. Pyrenom. 130. 1892.
Sordaria amphicornis Sacc. Syll. Fung. 1: 235. 1882.

Perithecia scattered, superficial or with base slightly sunken, 350–400 × 450–600 μ, membranaceous to coriaceous, black and covered sparingly with short, straight, septate, brown hairs, ovoid to ovoid-conic with short, flat, papilliform, black ostiolum; asci 8-spored, clavate, contracted and rounded above, and tapering below into a short, stipe-like base, 32–35 × 185–225 μ; characteristics of the paraphyses uncertain; spores 2-seriate, ellipsoid, somewhat sharply rounded at the ends, 14–18 × 24–32 μ, dark-brown and opaque when mature; primary appendage cylindric, straight, about one-third to two-thirds as long as spore; secondary appendages long, lash-like, gelatinous, attached to apex of spore and tip of primary appendage, composed of 2 closely united filaments which become indistinguishable distally.

On rabbit dung.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: Ontario to New Jersey.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 28: *pl. 2, f. 14–17;* Mem. Torrey Club 11: *pl. 7, f. 11–13.*

10. **Pleurage superior** D. Griff. Mem. Torrey Club 11: 68. 1901.

Sordaria superior Sacc. Syll. Fung. 17: 603. 1905.

Perithecia superficial, scattered, thin, membranaceous, brown and somewhat transparent to black and opaque in age, pyriform with short, papilliform, curved or erect beak, about 450 × 600 μ; the whole perithecium covered with short, blunt, septate, brown, hyaline-tipped, bristle-like hairs which are uniformly distributed over the entire surface with the exception of a small area around the ostiolum; asci 8-spored, clavate, contracted and rounded above and tapering below into a long, rather slender, crooked stipe, 250–275 ×

30–40 μ, evanescent; paraphyses somewhat ventricose, tapering upward and becoming filiform above, much longer than the asci and not mixed with them; spores 2-seriate, 4 and 4 or 2 and 6, ellipsoid, 27–32 × 53–60 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; primary appendage clavate and slightly shorter than the spore; secondary appendages very long and attached to the distal end of the primary and excentrically to the apex of the spore, the upper one larger than the lower, each made up of 2 distinct parts closely united, and each of these in turn showing longitudinal striations which indicate still finer subdivisions.

On cow dung.
TYPE LOCALITY: Summit, Montana.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 19, f. 14–16.*

11. **Pleurage fimiseda** (Ces. & De-Not.) D. Griff. Mem. Torrey Club **11**: 69. 1901.

Podospora fimicola Ces.; Klotzsch, Herb. Viv. Myc. ed. 2. *259.* 1856. — Bot. Zeit. **14**: 429. 1856. Not (?) *Schizothecium fimicola* Corda, 1838.
Sordaria fimiseda Ces. & De-Not. Comm. Critt. Ital. **1**: 226. 1863.
Cercophora fimiseda Fuckel, Symb. Myc. 244. 1869.
Podospora fimiseda Wint. in Rab. Krypt. Fl. 1³: 170. 1884.

Perithecia pyriform, large, superficial, scattered or aggregate in small clusters and erumpent between the undigested fibers of the substratum, about 1 mm. in its greatest diameter, densely covered on all the exposed portions by short, straight, septate, brown hairs, which have hyaline tips when young and, therefore, give the perithecium a grayish appearance, greenish when young, but becoming black and opaque with age; walls of the perithecium thick and coriaceous in texture; asci 8-spored, clavate, contracted and rounded above, and tapering below into a long stipe, evanescent, 55–65 × 330–375 μ; paraphyses abundant, filiform or slightly ventricose below, tapering upward, much longer than the asci; spores 2-seriate, 4 and 4 or 2 and 6, ellipsoid, 27–32 × 53–60 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; primary appendage clavate and slightly shorter than the spore; secondary appendages very long and attached to distal end of the primary and excentrically to the apex of the spore, the upper one larger than the lower, each made up of 2 distinct parts closely united, and each of these in turn showing longitudinal striations which indicate still finer subdivisions.

On dung of horses and cows.
TYPE LOCALITY: Europe.
DISTRIBUTION: New York to South Dakota and New Jersey; also in Europe.
ILLUSTRATIONS: Hedwigia **1**: *pl. 14, f. A;* Fuckel, Symb. Myc. *pl. 4, f. 1;* Mem. Torrey Club **11**: *pl. 8, f. 1–5.*

12. **Pleurage erostrata** D. Griff. Mem. Torrey Club **11**: 71. 1901.

Sordaria erostrata Sacc. Syll. Fung. **17**: 604. 1905.

Perithecia scattered and entirely superficial, 180–225 μ in diameter, thin, membranaceous, ranging from hyaline when young through greenish to black and opaque, completely covered with long, flexuous, septate, brown hairs, globose, with no beak and apparently no ostiolum; asci 8-spored, clavate, rounded above and contracted below into a short, stipitate base, very evanescent, 16–21 × 48–54 μ; paraphyses absent; spores 2-seriate, ellipsoid to ovoid, acutely rounded above and broadly rounded to truncate below, ranging from hyaline when young through olivaceous to dark-brown and opaque, 6.5–8 × 11–13 μ; primary appendage rather shorter than the spore, cylindric, straight, both this and the apex of the spore tipped with short, very evanescent, gelatinous awl-shaped appendages.

On dung of horses, cows, and rabbits.
TYPE LOCALITY: Aberdeen, South Dakota.
DISTRIBUTION: South Dakota to Montana, Arizona, and Texas.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 4, f. 11–13.*

13. **Pleurage Ellisiana** D. Griff. Mem. Torrey Club **11**: 72. 1901.

Sordaria Ellisiana Sacc. Syll. Fung. **17**: 601. 1905.

Perithecia scattered, half-sunken or superficial and imbedded in a dense growth of

brown mycelium, about 300 × 500 μ, thin, membranaceous, olivaceous below and brown above, pyriform, with papilliform, black, curved beak which is uniformly and sparingly covered with short, straight, sparingly septate hairs; asci 8-spored, clavate, contracted and rounded above and tapering below into a long, slender stipe, evanescent, 26–32 × 160–185 μ; paraphyses filiform, septate, slightly constricted below, longer than the asci; spores 2-seriate, ovoid to broadly ellipsoid, ranging from hyaline when young through olivaceous to dark-brown and opaque, 11–16 × 21–27 μ; primary appendage one-half to once the length of the spore, cylindric, straight, both this and the apex of the spore tipped with long, lash-like, gelatinous appendages, the upper one being excentrically attached.

On cow dung.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: New Jersey.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 5, f. 1–3.*

14. **Pleurage arachnoidea** (Niessl) D. Griff. Mem. Torrey Club 11: 73. 1901.

Podospora arachnoidea Niessl; Krieger, Fungi Sax. *371.* 1888.
Sordaria arachnoidea Sacc. & Syd. in Sacc. Syll. Fung. 14: 492. 1899.

Perithecia scattered, partially sunken or superficial and imbedded in a dense growth of mycelium, about 375 × 525 μ, membranaceous to slightly coriaceous, dark-brown to black and opaque, densely covered with long, septate, brown hairs on all exposed portions, pyriform with a bare, black, papilliform curved beak; asci 8-spored, cylindric, rounded above and tapering below into a long, slender stipe, 18–21 × 180–250 μ; apex of ascus containing a large, shining, highly refractory granule which becomes visible before the spores; paraphyses filiform, septate, slightly constricted, longer than the asci; spores 1-seriate, irregular and variable in outline, generally ellipsoid to ovoid, 6–11 × 17–21 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; primary appendage very long, curved and overlapping the spore below, this as well as the apex of the spore tipped with rather short, gelatinous, lash-like, secondary appendages.

On cow dung.
TYPE LOCALITY: Germany.
DISTRIBUTION: New York to New Jersey; also in Europe.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 5, f. 14–20.*

15. **Pleurage zygospora** (Speg.) Kuntze, Rev. Gen. 3[3]: 505. 1898.

Sordaria zygospora Speg. Michelia 1: 227. 1878.
Philocarpa zygospora Sacc. Syll. Fung. 1: 251. 1882.

Perithecia scattered, sunken or nearly superficial, when they are more or less covered with a dense or arachnoid fuscous mycelium, about 500 × 750 μ, thin, membranaceous, somewhat transparent, greenish below and black above, pyriform with a more or less elongate, cylindric, black, bare and curved beak; asci primarily 8-spored, cylindric to clavate, broadly rounded above and contracted below into a long, slender, crooked stipe, very evanescent, 42–54 × 250–320 μ; paraphyses ventricose, tapering upward, septate, agglutinate, longer than the asci and not mixed with them; spores consisting of an ellipsoid to ovoid fertile cell rounded at both ends, but usually more acutely so distally, at each end of a long, spirally arranged, hyaline, fugacious filament which corresponds to the primary appendage in the other species; terminal fertile cells 13–19 × 24–40 μ; secondary appendages consisting of usually 4 rather short, tapering, hyaline, gelatinous, widespread processes attached to the distal ends of the fertile cells.

On dung of horses, cows, goats, sheep, and pigs.
TYPE LOCALITY: Italy.
DISTRIBUTION: New York to South Dakota, Texas, and Louisiana; also in Europe.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 9, f. 1–14.*

16. **Pleurage vestita** (Zopf) D. Griff. Mem. Torrey Club 11: 76. 1901.

Sordaria vestita Zopf, Zeits. Naturw. 56: 556. 1883.
Podospora vestita Wint. in Rab. Krypt. Fl. 1[2]: 176. 1884.

Perithecia usually more or less sunken, but often quite superficial, scattered or aggregate in a dense growth of brown or olivaceous mycelium which covers the perithecium up to the black, bare, curved or straight, cylindric beak, pyriform, thin, membranaceous, black above but greenish below, especially in the sunken portions which are so transparent that the asci and spores can be quite distinctly seen, 400–525 × 675–825 μ; asci 8-spored, clavate, contracted and rounded above, and tapering below into a medium-sized pedicel, very evanescent, 40–55 × 180–210 μ; paraphyses ventricose, very evanescent, longer than the asci; spores 2-seriate, ellipsoid to ovoid, rounded above and below, but more narrowly so above, ranging from hyaline when young through olivaceous to dark-brown and opaque, 18–22 × 28–35 μ, spore terminated below by a cylindric primary appendage as long as the spore or slightly longer, which is tipped with 3 or 4 long, gelatinous appendages similar in all respects to those found at the apex of the spore.

On dung of horses, cows, sheep, rabbits, and pigs; also on dead culms of *Eleocharis*.
TYPE LOCALITY: Europe.
DISTRIBUTION: New York to Oregon, Arizona, and Louisiana; also in Europe.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 9, f. 5–8*.

17. **Pleurage californica** (Plow.) Kuntze, Rev. Gen. 3³: 505. 1898.

Sordaria californica Plow. Grevillea 7: 72. 1878.
Podospora californica Ellis & Ev. N. Am. Pyrenom. 132. 1892.

Perithecia large, covered with a dusky-brown felt, superficial, crowded or scattered, about 1 mm. high, the beak naked, rugose, often vertically striate; spores ellipsoid-fusiform, the lower end truncate, appendiculate, 30–35 × 15–18 μ; asci about 200–300 μ long.

On cow dung.
TYPE LOCALITY: California.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Grevillea 7: *pl. 120, f. 2*; Mem. Torrey Club 11: 78, *f. 5*.

18. **Pleurage striata** (Ellis & Ev.) Kuntze, Rev. Gen. 3³: 505. 1898.

Sordaria striata Ellis & Ev. Jour. Myc. 4: 79. 1888.
Podospora striata Ellis & Ev. N. Am. Pyrenom. 131. 1892.

Perithecia gregarious, ovoid, conic, 0.65 mm. high and 0.5 mm. broad, black, tubercular-roughened, the tubercles seriate above so as to cause the conic beak to appear striate, the tubercles at first capped with a few light-colored granules, like grains of white sugar, which at length disappear; asci linear-lanceolate, contracted towards each end and perforate above, 200 μ long (or longer, including the filiform base), and 12–15 μ wide, with abundant paraphyses; spores 2-seriate, ellipsoid, brown, 14–16 × 8–10 μ, the upper end acute or with a short hyaline appendage 8–12 μ long, the lower end prolonged into a yellowish-hyaline cylindric curved appendage 35–40 × 5 μ.

On a "decaying weed."
TYPE LOCALITY: Pointe à la Hache, Louisiana.
DISTRIBUTION: Known only from the type locality.

19. **Pleurage albicans** (Alb. & Schw.) D. Griff. Mem. Torrey Club 11: 79. 1901.

Sphaeria albicans Alb. & Schw. Consp. Fung. 36. 1805.
Sphaeria coprophila Fries, in Kunze & Schmidt, Myk. Hefte 2: 38. 1823.
Hypoxylon coprophilum Fries, Summa Veg. Scand. 384. 1849.
Sordaria coprophila Ces. & De-Not. Comm. Critt. Ital. 1: 226. 1863.
Podospora coprophila Wint. in Rab. Krypt. Fl. 1²: 172. 1884.
Pleurage coprophila Kuntze, Rev. Gen. 3³: 505. 1898.

Perithecia scattered and half sunken, or aggregate and even confluent in groups which cover large areas of the substratum, 450–600 × 750–900 μ, all exposed portions except the beak covered with a white tomentum which disappears with age and moisture, pyriform with a papilliform beak, coriaceous, black and opaque; asci 8-spored, cylindric to slightly clavate, rounded above and contracted below into a long slender stipe, very evanescent and

with a hyaline, homogeneous, highly refractive particle in the apex, 15–22 × 125–200 μ; paraphyses very evanescent, ventricose, agglutinate, longer than the asci; spores 2-seriate, ellipsoid to ovoid, 9–11 × 18–30 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; primary appendage twice as long as the spore, cylindric, curved, this as well as the apex of the spore tipped with a long, lash-like, gelatinous, fugacious, secondary appendage.

On dung of horses and cows.
TYPE LOCALITY: Europe.
DISTRIBUTION: New York to South Dakota and Alabama; also in Europe.
ILLUSTRATION: Mem. Torrey Club **11**: *pl. 5, f. 10–13*.

20. **Pleurage longicaudata** D. Griff. Mem. Torrey Club **11**: 81. 1901.

Sordaria longicaudata Sacc. Syll. Fung. **17**: 601. 1905.

Perithecia scattered, sunken, but becoming half exposed at maturity, 450–600 × 600–900 μ, thin, membranaceous, greenish below when young, but finally becoming black and opaque, globose to pyriform with short, narrow-cylindric, black, bare beak; asci clavate, straight or curved, contracted and narrowly rounded above and tapering below into a short, broad stipe, very evanescent, 32–42 × 280–300 μ; paraphyses very wide, tubular-ventricose, irregular, tapering upward, slightly longer than the asci; spores ellipsoid, rounded at the ends, but usually more acutely so above, 23–25 × 45–53 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; primary appendages pestle-shaped, about two-thirds the length of the spore; secondary appendages covering the entire spore and primary appendages as well, being shortest around the equator, increasing in length towards the ends where they become united into a very long, slender, fugacious, hyaline, gelatinous, striate-frayed filament.

On cow dung.
TYPE LOCALITY: Rooks County, Kansas.
DISTRIBUTION: Kansas to Texas and Alabama.
ILLUSTRATION: Mem. Torrey Club **11**: *pl. 8, f. 9–11*.

21. **Pleurage decipiens** (Wint.) Kuntze, Rev. Gen. **3**[3]: 505. 1898.

Sordaria decipiens Wint.; Fuckel, Jahrb. Nass. Ver. Nat. **27–28**: 44. 1873.
Eusordaria decipiens Zopf, Zeits. Naturw. **56**: 547. 1883.
Podospora decipiens Wint. in Rab. Krypt. Fl. **1**[2]: 173. 1884.

Perithecia pyriform, sunken in the substratum, scattered, 300–450 × 575–750 μ; walls thin, membranaceous, black above and greenish below, often so transparent that the asci and spores can be indistinctly seen by transmitted light; beak moderately long, straight or curved and often roughened above by a few short papillae; rhizoids abundant and extending up to the projecting, usually curved, black beak; asci 8-spored, clavate, rounded above and contracted below into a pedicel of medium length, evanescent, 40–55 × 180–240 μ; paraphyses long, ventricose, septate, agglutinate, abundant, but not much mixed with the asci; spores 2-seriate, ellipsoid to ovoid, slightly wider below the middle, 20–24 × 38–54 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; germpore large, apical and excentric; lower end of spore terminated by a long cylindric primary appendage, 1–1.5 times the length of the spore, the base of this appendage being surrounded by short, gelatinous, secondary appendages, while the apex of the spore is crowned by a lyre-shaped tuft of similar consistency.

On dung of cows, horses, sheep, prairie-dogs, rabbits, and dogs.
TYPE LOCALITY: Europe.
DISTRIBUTION: Vermont to Montana, Arizona, and Alabama; also in Europe.
ILLUSTRATIONS: Jahrb. Nass. Ver. Nat. **27–28**: *pl. 1, f. 33;* Rab. Krypt. Fl. **1**[2]: 173. *f. 1–3;* Mem. Torrey Club **11**: *pl. 9, f. 10–13*.

22. **Pleurage kansensis** D. Griff. Mem. Torrey Club **11**: 83. 1901.

Sordaria kansensis Sacc. Syll. Fung. **17**: 602. 1905.

Perithecia scattered or aggregate, sunken or nearly superficial, exposed portion covered with long, flexuous, olivaceous-brown, septate hairs, 375–450 × 600–800 μ, thin, membranaceous, greenish below when young, but becoming completely black and bare at maturity; beak papilliform to cylindric, black, bare, and usually curved; asci 8-spored, cylindric,

broadly rounded above and contracted below into a short slender stipe, 26–32 × 180–240 μ, evanescent; paraphyses ventricose, agglutinate, abundant, longer than the asci and not mixed with them; spores obliquely 1-seriate, ellipsoid, rounded at both ends, 18–21 × 26–35 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; primary appendage entirely absent; secondary appendages attached to each end of the spore, long, gelatinous, evanescent, each composed of 2 closely united filaments, which appear to fuse distally, and are striate longitudinally, making them appear as though formed of still smaller subdivisions.

On dung of horses and cows.
TYPE LOCALITY: Rooks County, Kansas.
DISTRIBUTION: South Dakota to Arizona and Texas.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 8, f. 6–8.*

23. **Pleurage Brassicae** (Klotzsch) Kuntze, Rev. Gen. 3³: 505. 1898.

Sphaeria Brassicae Klotzsch; Berk. in Smith, Engl. Fl. 5²: 261. 1836.
Sphaeria lanuginosa Preuss, Linnaea 26: 714. 1855.
Sordaria lanuginosa Sacc. Syll. Fung. 1: 237. 1882.
Podospora Brassicae Wint. in Rab. Krypt. Fl. 1²: 171. 1884.

Perithecia often aggregate, globose, with conic beak, covered with quite long, prominent, gray tomentum which becomes less conspicuous upward, about 0.7 × 1 mm.; asci 8-spored, cylindric-clavate, slightly contracted above and narrowed below into a long stipe, 34–40 × 200–300 μ; spores obliquely 1-seriate or irregular, ovoid-ellipsoid and tipped at each end with one or more hyaline, fugacious, curved appendages, dark-brown and glossy, 20–30 × 42–55 μ; paraphyses delicate, filiform, agglutinate.

On stems of plants, *Brassica*, etc.
TYPE LOCALITY: Europe.
DISTRIBUTION: California; also in Europe.
ILLUSTRATION: Mem. Torrey Club 11: 84. *f. 6.*

24. **Pleurage multicaudata** D. Griff. Mem. Torrey Club 11: 85. 1901.

Sordaria multicaudata Sacc. Syll. Fung. 17: 603. 1905.

Perithecia scattered, half-sunken, about 600 × 900 μ, slightly coriaceous, greenish below when young, but finally becoming black and opaque, pyriform to globular with papilliform to cylindric, black, curved beak, bearing bunches of long, straight, dark-brown, sparingly septate hairs on its convex side, the lower portion uniformly clothed with long, flexuous, brown, septate hairs; asci 8-spored, clavate, straight or curved, contracted and rounded above and tapering below into a narrow, short stipe, quite persistent, 42–58 × 225–260 μ; paraphyses wide, tubular-ventricose and but little longer than the asci; spores 2-seriate, ellipsoid to oblong, rounded at both ends, 20–25 × 40–55 μ, ranging from hyaline when young through olivaceous or yellow to dark-brown and opaque; primary appendages entirely absent; secondary appendages forming short, awl-shaped, gelatinous, very fugacious, hyaline projections covering the entire spore; projections shortest about the equator and gradually increasing in length toward the ends of the spore, but never reaching a length equal to it.

On cow dung.
TYPE LOCALITY: Highmore, South Dakota.
DISTRIBUTION: South Dakota to Mississippi.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 6, f. 7–9.*

25. **Pleurage lutea** (Ellis & Ev.) Kuntze, Rev. Gen. 3³: 505. 1898.

Sordaria lutea Ellis & Ev. Jour. Myc. 3: 118. 1887.
Philocopra lutea Ellis & Ev. N. Am. Pyrenom. 132. 1892.

Perithecia superficial, gregarious or scattered, about 0.5 × 0.75 mm., pyriform, slightly coriaceous, and completely covered, with the exception of the black, bare, papilliform beak, with a persistent light-yellow tomentum composed of branching and slightly roughened hair; asci clavate, rounded above and contracted below into a moderately long stipe, 14–17

× 135–200 μ; paraphyses not seen; spores 12–16 in an ascus, at first vermiform and greenish-yellow, finally almond-shaped and opaque, 7–8 × 14–16 μ; primary appendage cylindric, curved, 30–35 × 4 μ; secondary appendage short, slender and attached to apex of the spore.

On decaying wood, *Kalmia*, *Rhus*, *Acer*, etc.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: New York and New Jersey.

26. **Pleurage heterochaeta** D. Griff. Mem. Torrey Club **11**: 86. 1901.

Philocopra heterochaeta Sacc. Syll. Fung. **17**: 606. 1905.

Perithecia superficial or with base slightly sunken, scattered, thin, membranaceous, olivaceous in sunken portions but fuscous above, with blackened apex, somewhat transparent, about 450 × 700 μ; all exposed portions except the black, bare, papilliform beak covered with short, blunt, transversely or obliquely septate, agglutinate hairs, which are prominent around the base of the beak and decrease to mere scattered papillae downward; uniformly scattered among the latter are long, filiform, flexuous, septate, brown hairs, which gradually become transformed below into the rhizoids, which ramify through the substratum; asci 16-spored, cylindric-clavate, contracted and narrowly rounded above and contracted below into a short, stout stipe, 34–40 × 230–240 μ, very evanescent; paraphyses exceedingly ventricose, agglutinate and not at all mixed with the asci, often very indistinct and appearing more like a tissue lining the perithecium than like filaments; spores 2-seriate, ellipsoid, broadly rounded at both ends, 18–20 × 27–34 μ; primary appendages entirely wanting, the apex of the spore tipped with 2 awl-shaped, parallel or slightly divergent, rather firm, gelatinous appendages, which in the ascus are curved so as to appear as one; lower end of the spore bearing 2 similar but much more delicate, curved and variously twisted appendages.

On cow dung.
TYPE LOCALITY: Family, Montana.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club **11**: *pl. 17, f. 1–3.*

27. **Pleurage dakotensis** D. Griff. Mem. Torrey Club **11**: 87. 1901.

Philocopra dakotensis Sacc. Syll. Fung. **17**: 607. 1905.

Perithecia scattered, superficial or with the base slightly sunken, pyriform with papilliform to conic, curved beak, about 375–600 μ, thin, membranaceous, fuscous, transparent, and covered, especially above, by tufts of agglutinate obliquely-septate fuscous hairs; asci 32-spored, clavate, broadly rounded above and contracted below into a short, stipitate base, rather persistent, 30–40 × 175–220 μ; paraphyses slightly ventricose, septate, longer than the asci, but not mixed with them; spores in 2–4 series, ellipsoid to slightly ovoid, rounded at the ends, 12–15 × 18–23 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; primary appendage short, cylindric, straight and fugacious; secondary appendages tipping the primary and the apex of the spore, long, lash-like and very fugacious.

On dung of cows and rabbits; also on dead stems of *Salsola Tragus* L.
TYPE LOCALITY: Brookings, South Dakota.
DISTRIBUTION: New Jersey to South Dakota, Texas, and Alabama.
ILLUSTRATIONS: Mem. Torrey Club **11**: *pl. 7, f. 17–19.*

28. **Pleurage curvicolla** (Wint.) Kuntze, Rev. Gen. **3**[3]: 505. 1898.

Sordaria curvicolla Wint. Hedwigia **10**: 161. 1871.
Philocopra curvicolla Sacc. Syll. Fung. **1**: 250. 1882.
Podospora curvicolla Wint. in Rab. Krypt. Fl. **1**[2]: 176. 1884.

Perithecia sunken, scattered, but often erumpent and half superficial at maturity, 350–450 × 550–600 μ, thin, membranaceous, transparent, greenish to fuscous, pyriform with black, projecting, rather stout, papilliform beak, which is ornamented, mostly below the middle, with bunches of long, nearly straight, acuminate, very sparingly septate, greenish to brown hairs; asci 128–256 (?)-spored, widely clavate to sac-like, broadly rounded above and contracted below into a short stipe, 70–120 × 225–280 μ; paraphyses tubular to filiform,

tapering upwards, septate, longer than the asci; spores in many series, ellipsoid or slightly ovoid, 10–11 × 13.5–16 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque, terminated below by a short, primary appendage, this in turn, as well as the apex of the spore, tipped with a long, lash-like, gelatinous, hyaline, very fugacious, secondary appendage.

On dung of horses, cows, and rabbits.
TYPE LOCALITY: Germany.
DISTRIBUTION: New York to Montana and Alabama; also in Europe.
ILLUSTRATIONS: Bull. Torrey Club 26: *pl. 365, f. 13–15;* Mem. Torrey Club 11: *pl. 10, f. 1–6.*

29. **Pleurage collapsa** D. Griff. Mem. Torrey Club 11: 89. 1901.

Philocopra collapsa Sacc. Syll. Fung. 17: 607. 1905.

Perithecia scattered or aggregate, one-half to two-thirds immersed, 400–450 × 500–600 μ, thin, membranaceous, at first greenish below but soon becoming brown, pyriform to subglobose with papilliform to short, cylindric, black beak, the base of which, like the upper, exposed portion of the perithecium, is uniformly covered with long, flexuous, septate, brown hairs; asci 64-spored, fusiform, contracted and sharply rounded above and contracted below into a short, blunt stipe, very evanescent, about 65 × 210 μ; paraphyses ventricose, agglutinate, largest near the middle, longer than the asci, but not much mixed with them; spores in several series, ellipsoid and broadly rounded at the ends, 10–14 × 18–21 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; primary appendage very long and slightly clavate when young, but at maturity becoming very much shriveled and indistinguishable from the short, blunt, secondary appendages which terminate it as well as the apex of the spore.

On rabbit dung.
TYPE LOCALITY: New York City.
DISTRIBUTION: New York to Alabama.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 10, f. 14–18.*

30. **Pleurage pleiospora** (Wint.) Kuntze, Rev. Gen. 3³: 504. 1898.

Sordaria pleiospora Wint. Hedwigia 10: 161. 1871.
Philocopra pleiospora Sacc. Syll. Fung. 1: 249. 1882.
Podospora pleiospora Wint. in Rab. Krypt. Fl. 1²: 175. 1884.

Perithecia scattered and sunken but becoming more or less free with age, 375–525 × 550–750 μ, thin, membranaceous, greenish below, often somewhat transparent, pyriform with papilliform to somewhat elongate cylindric, black, bare, usually curved beak, the whole lower portion of the perithecium and often the surface of the substratum covered with a considerable growth of mycelium in the form of rhizoids; asci 64-spored, clavate to fusiform, contracted and narrowly rounded above and contracted below into a short, narrow, stipitate base, evanescent, 60–110 × 250–300 μ; paraphyses ventricose below, tubular, septate above, longer than the asci; spores in several series, ellipsoid, rounded at both ends but usually more broadly so below, 18–22 × 32–37 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; primary appendage cylindric, equal to or longer than the spore, the base surrounded with 2 to 4 hyaline, gelatinous, secondary appendages of various form and size, the apex of the spore being crowned by a tuft of very fine filaments closely united into a short, blunt, straight or curved appendage.

On dung of horses and cows.
TYPE LOCALITY: Europe.
DISTRIBUTION: New York to Mississippi and Alabama; also in Europe.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 10, f. 7–10.*

31. **Pleurage adelura** D. Griff. Mem. Torrey Club 11: 91. 1901.

Philocopra adelura Sacc. Syll. Fung. 17: 607. 1905.

Perithecia sunken, scattered, about 450 × 750 μ, thin, membranaceous, brown and opaque, pyriform, with a smooth, black, papilliform to cylindric, projecting beak; asci 64-spored, fusiform-clavate, contracted and narrowly rounded above and tapering below into a stout stipe, about 75 × 370 μ; paraphyses ventricose, agglutinate, irregular, longer than

the asci, but not mixed with them; spores in several series, ellipsoid, broadly rounded at both ends, 13–19 × 26–32 μ, ranging from hyaline when young through olivaceous to dark-brown and opaque; primary appendage wide, cylindric, shorter than the spore and quite persistent; secondary appendages terminating the primary and apex of the spore, at first long, delicate filaments made up of 2 strands, but at maturity appearing like 2 short, irregular projections with very uncertain characters.

On rabbit dung.
TYPE LOCALITY: Auburn, Alabama.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 10, f. 11–13.*

DOUBTFUL SPECIES

Pleurage canina (Peck) Kuntze, Rev. Gen. 3³: 505. 1898. *Sphaeria canina* Peck, Ann. Rep. N. Y. State Mus. 28: 78. 1876. *Philocopra canina* Sacc. Syll. Fung. 1: 251. 1882.

3. DELITSCHIA Auersw. Hedwigia 5: 49. 1866.

Perithecia superficial or sunken, thin and membranaceous to thick and coriaceous, dark-brown to black and opaque, hairy or smooth; asci 8- or 16-spored with an internal membrane which generally ruptures on a plainly marked constriction just below the apex; spores 2-celled, dark-brown and opaque, usually with a gelatinous envelope.

Type species, *Delitschia didyma* Auersw.

Asci 8-spored.
  Spores obliquely septate.
    Spores 1-seriate.
      Spores deeply constricted. — 1. *D. didyma.*
      Spores with broad shallow constriction. — 2. *D. eccentrica.*
    Spores 2-seriate. — 3. *D. leporina.*
  Spores transversely septate.
    Spores with hyaline envelope.
      Beak papilliform or short-cylindric.
        Spores small, 5–6 × 10–11 μ. — 4. *D. Marchalii.*
        Spores large, 18–24 × 42–54 μ. — 5. *D. furfuracea.*
      Beak long-cylindric or tuberculiform.
        Spores large, 25–27 × 54–72 μ. — 6. *D. Winteri.*
        Spores comparatively small, 13–16 × 27–30 μ. — 7. *D. vulgaris.*
    Spores without hyaline envelope but having a hyaline apiculus. — 8. *D. apiculata.*
Asci 16-spored. — 9. *D. polyspora.*

1. Delitschia didyma Auersw. Hedwigia 5: 49. 1866.

Delitschia Auerswaldii Fuckel, Symb. Myc. 241. 1869.

Perithecia sunken, scattered, with papilliform or long-cylindric, curved or twisted, black beak which may be uniformly covered with short, brown, septate hairs or perfectly smooth, black and bare, 400–700 μ in diameter, subglobose to pyriform, thin, membranaceous, dark-brown to black and opaque; asci 8-spored, cylindric to very slightly clavate, broadly rounded above and contracted below into a rather long, tapering stipe, 28–32 × 225–260 μ, rather persistent; paraphyses filiform, septate, abundant, longer than the asci and mixed with them; spores obliquely 1-seriate, ellipsoid, acutely rounded at the ends, obliquely 1-septate with a narrow deep constriction, 15–18 × 42–46 μ, ranging from hyaline when young through yellow to dark-brown and opaque; gelatinous envelope prominent and swelling greatly in water.

On cow dung.
TYPE LOCALITY: Europe.
DISTRIBUTION: New York to South Dakota; also in Europe.
ILLUSTRATIONS: Hedwigia 7: *pl. 1, f. 9;* Mem. Torrey Club 11: *pl. 13, f. 4–6.*

2. Delitschia eccentrica D. Griff. Mem. Torrey Club 11: 101. 1901.

Perithecia scattered, sunken, with a long, projecting, cylindric, truncate or rounded beak which is usually covered with short, septate, brown hairs up to the enlarged, bare, black, smooth or warty apex, 0.75 × 0.30–0.50 mm., thin, membranaceous, dark-brown to black and opaque; asci 8-spored, cylindric, broadly rounded above and contracted below into a moderately stout stipe, quite persistent, 34–40 × 330–370 μ; paraphyses filiform, spar-

ingly and indistinctly septate, longer than the asci and mixed with them; spores ellipsoid, acutely rounded at both of the excentric ends, obliquely 1-septate with a broad, very shallow constriction, 21–24 × 45–50 μ, ranging from hyaline when young through yellow to dark-brown and opaque; hyaline covering extending greatly in water.

On cow dung.
TYPE LOCALITY: Austin, Texas.
DISTRIBUTION: Texas to Mississippi.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 13, f. 7–9.*

3. **Delitschia leporina** D. Griff. Mem. Torrey Club 11: 102. 1901.

Perithecia scattered, sunken, with a projecting, black, broad, truncate, roughened or warty beak which is uniformly covered with long, flexuous, delicate, brown, septate hairs, about 500 × 600–750 μ, pyriform to short-cylindric or conic, truncate, thin, membranaceous, dark-brown to black and opaque; asci 8-spored, clavate, broadly rounded above and contracted below into a short, blunt stipe, 30–34 × 240–295 μ, persistent; paraphyses filiform, septate, abundant, mixed with and longer than the asci; spores 2-seriate, rather narrowly ellipsoid, acutely rounded at the ends, obliquely 1-septate with a deep, rather broad constriction, 16–20 × 40–65 μ, ranging from hyaline when young through yellow to dark-brown and opaque; hyaline envelope very distinct and evidently 1-septate, corresponding to the septum of the spore, when swollen by the action of water.

On rabbit dung.
TYPE LOCALITY: Fort Lee, New Jersey.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 13, f. 14–16.*

4. **Delitschia Marchalii** Berl. & Vogl. in Sacc. Syll. Fung. Addit. 127. 1886.

Delitschia sp. Marchal, Bull. Soc. Bot. Belg. 23²: 16. 1884.

Perithecia scattered, sunken, subglobose, 275–350 μ in diameter, thin, membranaceous, black and opaque, with a black papilliform beak; asci 8-spored, cylindric, broadly rounded above and slightly contracted below into a short, stout stipe, 9–12 × 65–80 μ; paraphyses filiform, sparingly branched, indistinctly septate, numerous, mixed with the asci and about equal to them in length; spores obliquely 1-seriate, ellipsoid to ovoid, 1-septate, but little if at all constricted, 5–6 × 10–11 μ, ranging from hyaline when young through yellow to dark-brown and opaque, surrounded by a very narrow, hyaline, gelatinous envelope.

On rabbit dung.
TYPE LOCALITY: Belgium.
DISTRIBUTION: New Jersey; also in Europe.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 13, f. 1–3.*

5. **Delitschia furfuracea** Niessl; Rehm, Hedwigia 23: 75. 1884.

Perithecia scattered, sunken, with projecting, black, bare, papilliform or short-cylindric beak, 450 × 650 μ in diameter, subglobose to pyriform, membranaceous to slightly coriaceous, dark-brown to black, and at first having a distinctively greenish tint on the substratum around the base of the beak; asci 8-spored, clavate to fusiform, usually widest below the middle, broadly rounded above and rather abruptly contracted below into a short, blunt stipe, 40–48 × 250–300 μ; paraphyses filiform, coarsely guttulate, septate, longer than the asci and mixed with them; spores somewhat 2-seriate below, ovoid to ellipsoid, broadly or acutely rounded at the ends, 1-septate with a broad shallow constriction, 18–24 × 42–54 μ, ranging from hyaline when young through yellow to dark-brown and opaque; gelatinous envelope prominent and enlarging greatly in water.

On dung of rabbits, horses, and burros.
TYPE LOCALITY: Europe.
DISTRIBUTION: Montana to Colorado and Kansas; also in Europe.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 14, f. 7–9.*

6. **Delitschia Winteri** Phill. & Plow. Grevillea 2: 188. 1874.

Perithecia scattered, sunken, pyriform to globose, with long, broad-cylindric, curved or twisted projecting beak which may be sparingly covered with long, straight, brown

hair, or entirely smooth, black and shiny, about 0.75 × 1 mm., thick, membranaceous to decidedly coriaceous, dark-brown to black and opaque; asci 8-spored, cylindric-clavate, broadly rounded above and contracted below into a moderate stipe, 48–56 × 300–375 μ, rather persistent; paraphyses filiform, sparingly septate and slightly constricted below, abundant, longer than the asci and mixed with them; spores 2-seriate, ellipsoid to ovoid, broadly to acutely rounded at the ends, 1-septate, with a broad, shallow constriction, 25–27 × 54–72 μ, ranging from hyaline when young through yellow to dark-brown and opaque; hyaline envelope prominent and becoming very wide in water.

Type on rabbit dung; also on dung of horses and cows.
TYPE LOCALITY: Europe.
DISTRIBUTION: Rhode Island to Vermont, Montana, California, and Mississippi; also in Europe.
ILLUSTRATIONS: Grevillea 2: *pl. 25, f. 1;* Mem. Torrey Club 11: *pl. 14, f. 10–12.*

7. **Delitschia vulgaris** D. Griff. Mem. Torrey Club 11: 104. 1901.

Perithecia scattered, sunken, subglobose to pyriform with a long, cylindric, curved or twisted beak which is densely covered with short, wavy, brown, sparingly septate hairs, 375–450 × 600–750 μ, thin, membranaceous, brown to black and opaque; asci 8-spored, cylindric, broadly rounded above and contracted below into a stout, tapering stipe, persistent, 24–27 × 185–215 μ; paraphyses filiform, septate, abundant, longer than the asci and mixed with them; spores obliquely 1-seriate, 1-septate, broadly rounded at the ends, with a broad, shallow constriction, 13–16 × 27–30 μ, ranging from hyaline when young through yellow to dark-brown and opaque; hyaline envelope prominent and swelling greatly in water.

On dung of horses and cows.
TYPE LOCALITY: New York City.
DISTRIBUTION: New York to Alabama.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 14, f. 4–5.*

8. **Delitschia apiculata** D. Griff. Mem. Torrey Club 11: 104. 1901.

Perithecia half sunken, scattered or aggregate in small clusters, 300–350 × 375–500 μ, thin, membranaceous, pyriform with a papilliform to short-cylindric, curved, black beak which is sparingly covered with short, straight, acuminate, brown, 1-septate, bristly hairs; asci 8-spored, clavate, broadly rounded above and contracted below into a long, tapering stipe, very evanescent, 32–38 × 160–200 μ; paraphyses filiform, abundant, indistinctly septate, much longer than the asci, and mixed with them; spores 2-seriate, ellipsoid, sharply rounded at the ends, 1-septate, not constricted at the septum, 16–21 × 28–34 μ; hyaline envelope entirely absent, but the spore tipped at each end with a short, hyaline, triangular apiculus.

On dead stems of Russian thistle, *Salsola Tragus* L.
TYPE LOCALITY: Aberdeen, South Dakota.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 13, f. 10–13.*

9. **Delitschia polyspora** D. Griff. Mem. Torrey Club 11: 105. 1901.

Perithecia scattered, sunken, with a projecting, truncate, black, bare, shining, cylindric, straight or curved beak of variable length, about 0.65–0.75 × 1 mm., subglobose to pyriform, slightly coriaceous, dark-brown to black and opaque; asci 16-spored, clavate to fusiform, broadly rounded above and rather abruptly contracted below into a short, blunt stipe, 85–100 × 340–375 μ, rather persistent; paraphyses filiform, septate, abundant, longer than the asci, and mixed with them; spores 3-seriate to crowded, ellipsoid, usually broadly rounded at the ends, 1-septate with a broad deep constriction, 21–24 × 52–62 μ, ranging from hyaline when young through yellow to dark-brown and opaque; hyaline envelope prominent and having an evident septum, which may be distinctly seen when extended in water, corresponding to that of the spore.

On cow dung.
TYPE LOCALITY: Tucson, Arizona.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 14, f. 1–3.*

4. SPORORMIA De-Not. Mem. Accad. Torino II. 10 : 342. 1849.

Perithecia globose or ovoid, sunken or less frequently superficial, with papilliform to cylindric beak, membranaceous to coriaceous and sometimes slightly brittle; asci cylindric to clavate with an internal membrane which is usually perforate at the apex; spores cylindric, 3-many-septate, usually dark-brown and opaque and surrounded by a hyaline gelatinous envelope.

Type species, *Sporormia fimetaria* De-Not.

Spores 3-septate.
- Beak always small, papilliform or wanting.
  - Paraphyses few or entirely wanting.
    - Spores dark-brown or black at maturity. — 1. *S. minima.*
    - Spores yellow at maturity. — 2. *S. chrysospora.*
  - Paraphyses abundant.
    - Spores narrowly cylindric.
      - Asci clavate; spores 9–11 × 48–60 μ. — 3. *S. intermedia.*
      - Asci cylindric; spores 5–6 × 32–35 μ. — 4. *S. leporina.*
    - Spores ovoid to broadly cylindric. — 5. *S. lata.*
- Beak prominent, papilliform to short-cylindric.
  - Spores 1-seriate, small. — 6. *S. pulchella.*
  - Spores 2-seriate, large. — 7. *S. megalospora.*
- Beak long-cylindric or enlarged and tubercular.
  - Beak tubercular.
    - Plant small; spores 5.5–7 × 32–33 μ. — 8. *S. tuberculata.*
    - Plant large; spores 10–12 × 72–77 μ. — 9. *S. kansensis.*
  - Beak cylindric.
    - Beak hairy. — 10. *S. chaetomioides.*
    - Beak smooth, long and narrow. — 11. *S. dakotensis.*

Spores more than 3-septate.
- Spores 6-septate. — 12. *S. americana.*
- Spores 7-septate. — 13. *S. corynespora.*
- Spores 15-septate, united into a cylindric mass. — 14. *S. fimetaria.*
- Spores 10–15-septate with a very large cell in upper spore of ascus. — 15. *S. herculea.*

1. Sporormia minima Auersw. Hedwigia 7 : 66. 1868.

Sphaeria multifera Berk. & Rav.; Berk. Grevillea 4 : 143. 1876.
Philocopra multifera Sacc. Syll. Fung. 1 : 294. 1882.

Perithecia scattered, sunken, with the small papilliform beak projecting to the surface, later more or less erumpent and the beak disappearing almost entirely, leaving the perithecium simply perforate, 90–120 μ in diameter, globose, thin, membranaceous, dark-brown and opaque; asci 8-spored, cylindric-clavate, broadly rounded above and contracted below into a short or almost sessile base, rather persistent, 13–17 × 65–95 μ; paraphyses very scant or often entirely absent, filiform, septate, about equal to the asci; spores in 2 or 3 series, 3-septate, straight or curved, cylindric, rounded at the ends, deeply constricted and easily separable, 5.5–6 × 29–34 μ, ranging from hyaline when young through yellow to dark-brown and opaque; hyaline envelope becoming very prominent in water and evidently septate, corresponding with the septation of the spore.

On the dung of goats, horses, cows, sheep, rabbits, dogs, prairie-dogs, and burros.
TYPE LOCALITY: Europe.
DISTRIBUTION: Vermont to Oregon, Arizona, and Louisiana; also in Europe.
ILLUSTRATIONS: A. Berl. Ic. Fung. 1: *pl. 28, f. 1*; Ellis & Ev. N. Am. Pyrenom. *pl. 18, f. 6–9*; Mem. Torrey Club 11: *pl. 15, f. 16–18.*

2. Sporormia chrysospora D. Griff. Mem. Torrey Club 11 : 108. 1901.

Perithecia scattered, sunken, or aggregate in small clusters and erumpent, becoming more or less free at maturity, globose with a short, black, bare, papilliform beak (or the beak may be entirely absent, when the perithecium is simply perforate), 225–300 μ in diameter, thin, membranaceous or often inclined to be brittle, black and opaque; asci 8-spored, cylindric-clavate, broadly rounded above and contracted below into a short, blunt stipe, persistent, 10–12 × 65–95 μ; paraphyses filiform, septate, scant, mixed with the asci and about equal to them in length; spores 2-seriate, narrowly ellipsoid, slightly wider above than below, rounded at the ends, 5–7 × 21–24 μ, 3-septate with shallow constrictions, not easily separable, light-yellow when mature; hyaline envelope narrow and often indistinct.

On rabbit dung.
TYPE LOCALITY: Decorah, Iowa.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 15, f. 4–6.*

3. **Sporormia intermedia** Auersw. Hedwigia **7**: 67. 1868.

Perithecia sunken and scattered, or more often aggregate into small clusters and erumpent by pushing up small areas of the substratum which fall away and leave the small clusters of perithecia exposed, subglobose with a small, black, shining, papilliform beak, 175–225 μ in diameter, coriaceous or often slightly brittle, always perfectly black and opaque when mature; asci 8-spored, clavate, broadly rounded above and contracted below into a short, blunt, usually curved base, 24–28 × 170–200 μ, quite persistent, opening by a lid-like or a thimble-like rupture when the perforate membrane becomes plainly visible; paraphyses filiform, septate and constricted below, sparingly branched, longer than the asci and mixed with them; spores in 2–3 series and overlapping, 3-septate, deeply constricted, cylindric, straight or slightly curved, broadly rounded at the ends, 9–11 × 48–60 μ; hyaline envelope surrounding the entire spore, swelling greatly in water and showing striations continuous with the septa of the spore.

On dung of rabbits, horses, cows, sheep, prairie-dogs, and dogs.
TYPE LOCALITY: Europe.
DISTRIBUTION: Vermont to Oregon, California, and Mississippi; also in Europe.
ILLUSTRATIONS: Hedwigia **7**: *pl. 1, f. 4*; A. Berl. Ic. Fung. **1**: *pl. 29, f. 2*; Mem. Torrey Club **11**: *pl. 15, f. 19–21*.

4. **Sporormia leporina** Niessl, Oesterr. Bot. Zeits. **28**: 44, 96. 1878.

Perithecia sunken and scattered or aggregate in small, loose clusters which become erumpent and form small elevations of the material of the substratum, which, on disintegrating, leaves the perithecia exposed, 150–180 × 200–225 μ, subglobose to ovoid, with a papilliform or conic beak, thin, membranaceous or often inclined to be brittle, black and shining above; asci 8-spored, cylindric, broadly rounded above and contracted below into a short, blunt stipe, persisent, 12–16 × 105–135 μ; paraphyses filiform, septate, constricted especially below, sparingly branched, abundant, longer than the asci and mixed with them; spores obliquely 2-seriate, cylindric, 3-septate, deeply constricted, easily separable, rounded at the ends, 5–6 × 32–35 μ, ranging from hyaline when young through yellow to dark-brown and opaque; hyaline envelope becoming prominent in water and evidently striate corresponding with the septation of the spores.

On rabbit dung; also cultivated on the dung of horses and cows.
TYPE LOCALITY: Europe.
DISTRIBUTION: New York, New Jersey, and Ontario; also in Europe.
ILLUSTRATIONS: A. Berl. Ic. Fung. **1**: *pl. 28, f. 3*; Mem. Torrey Club **11**: *pl. 15, f. 19–21*.

5. **Sporormia lata** D. Griff. Mem. Torrey Club **11**: 110. 1901.

Perithecia scattered, sunken and firmly attached to the substratum by an abundance of fine, white rhizoids, about 375 × 600 μ, subglobose to ovoid with a short, papilliform, bare, black, and shining beak, membranaceous to coriaceous, black and opaque; asci 8-spored, cylindric, broadly rounded above and narrowed below into a short, stout, blunt stipe, persistent, 30–35 × 260–320 μ; paraphyses filiform, septate, richly branched, very numerous, slightly longer than the asci and mixed with them; spores 1-seriate, ovoid to broad-cylindric, broadly rounded at the ends, 16–18 × 45–48 μ, 3-septate, deeply constricted but not easily separable; hyaline envelope prominent and swelling greatly in water.

On rabbit dung.
TYPE LOCALITY: Decorah, Iowa.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club **11**: *pl. 16, f. 10–12*.

6. **Sporormia pulchella** E. C. Hansen, Vidensk. Meddel. **1876**: 320. 1877.

Perithecia scattered, sunken, erumpent and more or less superficial at maturity, globose, with a papilliform to short-cylindric, black, naked, curved or straight beak which may be lighter-colored at the very apex, 180–300 × 300–450 μ, including beak, thin, membranaceous, black and opaque; asci 8-spored, cylindric, broadly rounded at the apex and slightly contracted below into a short, comparatively wide, blunt stipe, persistent, 10–13 × 135–180 μ; paraphyses filiform, septate, branched, mixed with the asci and about equal-

ing them in length; spores obliquely 1-seriate, narrowly ellipsoid, acutely rounded at the ends, 5–8 × 23–24 μ, 3-septate, deeply constricted but not easily separable, dark-brown and opaque, surrounded by a prominent, hyaline envelope.

On cow dung.
TYPE LOCALITY: Europe.
DISTRIBUTION: South Dakota; also in Europe.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 15, f. 10–12.*

7. **Sporormia megalospora** Auersw. Hedwigia **7**: 68. 1868.

Perithecia scattered, sunken, but erumpent and more or less exposed at maturity, globose with a papilliform or short-cylindric, bare, black and shining beak, 300–400 μ in diameter, slightly coriaceous, black and opaque; asci cylindric, clavate, broadly rounded above and contracted below into a comparatively broad, stout base, persistent, 35–45 × 180–250 μ; paraphyses filiform, septate, sparingly branched, abundant, longer than the asci and mixed with them; spores in 2 or 3 series, cylindric, broadly to acutely rounded at the ends, 3-septate, deeply constricted and easily separable, 70–85 × 15–18 μ, ranging from hyaline when young through yellow to dark-brown and opaque; hyaline envelope rather narrow and swelling but little in water.

On the dung of cows, horses, and rabbits.
TYPE LOCALITY: Europe.
DISTRIBUTION: Rhode Island to Montana, Arizona, and Alabama; also in Europe.
ILLUSTRATIONS: Mem. Torrey Club 11: *pl. 16, f. 1–3;* A. Berl. Ic. Fung. 1: *pl. 29, f. 5.*

8. **Sporormia tuberculata** D. Griff. Mem. Torrey Club **11**: 112. 1901.

Perithecia scattered, sunken and remaining so at maturity, globose to ovoid with a long, projecting, funnel-form to irregularly tubercular, enlarged, black beak, 225–275 × 375–450 μ, thin, membranaceous, black and opaque; asci 8-spored, clavate, broadly rounded above and contracted below into a rather long narrow stipe, persistent, 11–13 × 100–130 μ; paraphyses filiform, faintly septate, guttulate, mixed with the asci and about equal to them in length; spores 2-seriate, cylindric, rounded at the ends, 3-septate, deeply constricted and easily separable, 5.5–7 × 32–33 μ; hyaline envelope rather narrow.

On dung of goats and horses.
TYPE LOCALITY: Fort Lee, New Jersey.
DISTRIBUTION: New Jersey to Arizona.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 15, f. 13–15.*

9. **Sporormia kansensis** D. Griff. Mem. Torrey Club **11**: 113. 1901.

Perithecia scattered, sunken, erumpent, and partly exposed at maturity, globose with a long, wide, black, bare, cylindric or funnel-form, tuberculate beak, 300–450 × 600–900 μ, firmly attached to the substratum by numerous fine rhizoids, rather thick, coriaceous, black and opaque; asci cylindric, broadly rounded above and contracted below into a moderately stout stipe, persistent, 26–34 × 240–290 μ; paraphyses filiform, septate, homogeneous, abundant, sparingly branched, longer than the asci and mixed with them; spores in 2 or 3 series, cylindric, straight or slightly curved, rounded at the ends, very deeply constricted and easily separable, 3-septate, 10–12 × 72–77 μ, ranging from hyaline when young through yellow to dark-brown and opaque; hyaline envelope prominent and stretching greatly in water.

On rabbit dung.
TYPE LOCALITY: Rooks County, Kansas.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 16, f. 7–9.*

10. **Sporormia chaetomioides** D. Griff. Mem. Torrey Club **11**: 113. 1901.

Perithecia scattered, sunken, with a long cylindric, straight or curved beak which is densely covered with long, flexuous, faintly septate, fuscous to brown hairs as far as the black, shining apex, which appears, when viewed from above, as a black perforate speck surrounded by the long wavy hairs, 300–400 × 600–700 μ, thin, membranaceous, greenish

below when young, but finally black and opaque; asci 8-spored, cylindric-clavate, broadly rounded above and contracted below into a long slender stipe about half the length of the spore-bearing portion, rather persistent, 13–18 × 130–180 μ; paraphyses abundant, filiform, septate, branching, much longer than the asci and mixed with them; spores in 2–3 series, cylindric, broadly to acutely rounded at the ends, 5–6 × 26–40 μ, 3-septate, deeply constricted and easily separable, brown and opaque when mature; hyaline envelope rather narrow.

On cow dung.
TYPE LOCALITY: Biloxi, Mississippi.
DISTRIBUTION: Mississippi to Arizona.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 16, f. 7–9.*

11. **Sporormia dakotensis** D. Griff. Mem. Torrey Club 11: 114. 1901.

Perithecia scattered or aggregate in small clusters, sunken, globose with a long, projecting, narrow-cylindric, curved, straight, or variously contorted, bare, black beak, 350–450 × 700–800 μ, thin, membranaceous, finally becoming black and opaque; asci 8-spored, clavate, rounded above and contracted below into a long, slender stipe, 8–11 × 90–110 μ; paraphyses filiform, abundant, septate, longer than the asci and mixed with them; spores in 2–3 series, cylindric, straight or curved, rounded at the ends, 3–4 × 22–24 μ, 4-septate, deeply constricted and easily separable; hyaline envelope narrow and often indistinct.

On dung of horses and cows.
TYPE LOCALITY: Brookings, South Dakota.
DISTRIBUTION: Montana to Mississippi.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 15, f. 7–9.*

12. **Sporormia americana** D. Griff. Mem. Torrey Club 11: 114. 1901.

Perithecia scattered, sunken, with short, black, shining, papilliform beak projecting from the surface of the substratum, 175–225 μ in diameter, globose to ovoid, thin, membranaceous to coriaceous, black and shining when removed from the substratum to which it is firmly attached; asci 8-spored, cylindric-clavate, broadly rounded above and contracted below into a short, stipitate base, 27–32 × 160–210 μ; paraphyses abundant, filiform, slightly wider below than above, guttulate, septate, slightly longer than the asci and mixed with them; spores in 2–3 series, slightly fusiform and widest above the middle, 6-septate, with the third cell from the upper end larger than the others, the 5 middle cells broader than long, the end cells slightly ovoid and longer than broad, 10–13 × 54–62 μ; hyaline envelope prominent.

On rabbit dung.
TYPE LOCALITY: Gunnison, Colorado.
DISTRIBUTION: Colorado to California.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 17, f. 11–13.*

13. **Sporormia corynespora** Niessl, Oesterr. Bot. Zeits. 28: 45, 166. 1878.

Perithecia sunken and scattered or aggregate in small, loose groups and erumpent, becoming free with age, 190–275 μ in diameter, subglobose to ovoid with a short, blunt, black and shining, papilliform beak, thin, coriaceous, black and opaque; asci 8-spored, clavate, broadly rounded above and contracted below into a short, rather narrow stipe, quite persistent, 18–24 × 160–175 μ; paraphyses filiform, septate, a little larger below, slightly longer than the asci and mixed with them; spores in 2–3 series, 7-septate, slightly clavate with the third cell from the top abruptly larger than the others, end cells conic and broadly or acutely rounded, the remainder subglobose, 9–10.5 × 50–56 μ, covered with a narrow hyaline envelope.

On rabbit dung.
TYPE LOCALITY: Europe.
DISTRIBUTION: Kansas; also in Europe.
ILLUSTRATIONS: A. Berl. Ic. Fung. 1: *pl. 31, f. 3;* Mem. Torrey Club 11: *pl. 17, f. 8–10.*

14. **Sporormia fimetaria** De-Not. Mem. Accad. Torino II. **10**: 342. 1849.

Sphaeria fimetaria Rab.; Klotzsch, Herb. Viv. Myc. *1733*. 1853.

Perithecia scattered, sunken beneath the thin upper crust of the substratum through which the upper wall of the perithecium opens on the surface, 90–120 μ in diameter, thin, membranaceous, brown, without any visible beak, the ostiolum being simply an opening in the wall of the perithecium; asci 8-spored, cylindric, broadly rounded above and contracted below into a rather broad, stout, stipitate base, rather persistent, 12–16 × 70–80 μ; paraphyses filiform, septate, sparingly branched, longer than the asci and mixed with them; spores parallel, firmly united into a cylindric, truncate mass in the center of the ascus, 3.5–4 × 50–54 μ, 15-septate with the end cells nearly twice the length of the others, the whole mass of spores surrounded by a very narrow hyaline envelope which does not adhere to the individual spores when isolated.

On dung of cows and sheep.
TYPE LOCALITY: Europe.
DISTRIBUTION: Vermont to South Dakota, Texas, and Mississippi; also in Europe.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 17, f. 4–6*.

15. **Sporormia herculea** Ellis & Ev. N. Am. Pyrenom. 135. 1892.

Perithecia sunken, scattered, with a projecting, black, cylindric beak which terminates in an enlarged, black, warty, irregularly expanded or even forked extremity, about 440–550 μ in diameter, globose, membranaceous to coriaceous, sometimes inclined to be brittle, black and opaque; asci 8-spored, clavate or slightly fusiform, broadly rounded above and contracted below into a short, blunt stipe, quite persistent, 45–60 × 225–300 μ; paraphyses filiform, abundant, septate, slightly constricted below, longer than the asci and mixed with them; spores obliquely 2–3-seriate, 10–15-septate, cylindric to very slightly fusiform, rounded or subacute at the ends, deeply constricted and easily separable into individual cells, 18–21 × 135–150 μ, the second to the fifth cell from above in the upper spore of ascus being much larger than any of the others; ordinary cells 13–16 × 16–21 μ; large cell about 18 × 24 μ, ranging from hyaline and decidedly fusiform when young through yellow to dark-brown, opaque and cylindric.

On dung of cows and horses.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: Rhode Island to Texas.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 17, f. 1–3*.

5. SPORORMIELLA Ellis & Ev. N. Am. Pyrenom. 136. 1892.

Perithecia imbedded in a stroma; asci with an internal membrane which stretches at maturity; spores 3-septate and surrounded by a hyaline, gelatinous envelope; indistinguishable from *Sporormia* except for the presence of a stroma.

Type species, *Sporormiella nigropurpurea* Ellis & Ev.

1. **Sporormiella nigropurpurea** Ellis & Ev. N. Am. Pyrenom. 136. 1892.

Perithecia scattered or aggregate in large clusters and imbedded in a dark-gray stroma which is purplish within, sunken or slightly elevated when confluent, subglobose or ovoid, thick-walled with papilliform, black, shining and perforate beak about 0.35 mm. in diameter; asci 8-spored, cylindric-clavate, broadly rounded above and gradually contracted below into a short, crooked stipe, 10–12 × 90–125 μ; paraphyses filiform, abundant, faintly guttulate, faintly septate, much longer than the asci and mixed with them; spores 3-septate, cylindric, deeply constricted, rounded at the ends, 20–26 × 4–6 μ, the terminal cells subovoid, the middle ones subglobose; hyaline envelope narrow and indistinct.

On cow dung.
TYPE LOCALITY: Newfield, New Jersey.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Mem. Torrey Club 11: *pl. 15, f. 1–3*.

EXCLUDED GENUS

HYPOCOPRA Fries, Summa Veg. Scand. 397. 1849. *Coprolepa* Fuckel, Symb. Myc. 239.

GENERIC INDEX

Allantonectria, 17
Balansia, 55
Barya, 47
Broomella, 46
Byssonectria, 39
Calonectria, 12
Chaetomium, 59
Chromocrea, 35
Chromocreopsis, 37
Cordyceps, 48
Creonectria, 18
Delitschia, 81
Echinodothis, 27
Eleuthromyces, 5
Fimetaria, 65
Gibberella, 25
Hypocrea, 31
Hypocrella, 48
Hypocreopsis, 45
Hypomyces, 41
Hyponectria, 4
Letendraea, 15
Macbridella, 24
Megalonectria, 17
Melanospora, 14
Nectria, 6
Nectriella, 4
Neocosmospora, 18
Oomyces, 47
Ophionectria, 13
Peckiella, 39
Pleurage, 69
Podostroma, 36
Polystigma, 38
Pseudonectria, 6
Scoleconectria, 25
Spermoedia, 54
Sphaerodermatella, 17
Sphaerostilbe, 15
Sporormia, 84
Sporormiella, 88
Stilbocrea, 37
Thyronectria, 28
Thyronectroidea, 30
Typhodium, 47

PARTS OF VOLUMES PREVIOUSLY PUBLISHED

7[1]: 1–82. Ustilaginales: Ustilaginaceae, Tilletiaceae.

7[2]: 83–160. Uredinales: Coleosporiaceae, Uredinaceae, Aecidiaceae (pars).

9[1]: 1–72. (Agaricales:) Polyporaceae (pars).

9[2]: 73–132. (Agaricales:) Polyporaceae (conclusio).

9[3]: 133–200. (Agaricales:) Boletaceae, Agaricaceae (pars).

16[1]: 1–88. Ophioglossales: Ophioglossaceae. Marattiales: Marattiaceae. Filicales: Osmundaceae, Ceratopteridaceae, Schizaeaceae, Gleicheniaceae. Cyatheaceae (pars).

17[1]: 1–98. Pandanales: Typhaceae, Sparganiaceae. Naiadales: Zannichelliaceae, Zosteraceae, Cymodoceaceae, Naiadaceae, Lilaeaceae. Alismales: Scheuchzeriaceae, Alismaceae, Butomaceae. Hydrocharitales: Elodeaceae, Hydrocharitaceae. Poales: Poaceae (pars).

22[1]: 1–80. Rosales: Podostemonaceae, Crassulaceae, Penthoraceae, Parnassiaceae.

22[2]: 81–192. (Rosales:) Saxifragaceae, Hydrangeaceae, Cunoniaceae, Iteaceae, Pterostemonaceae, Hamamelidaceae, Altingiaceae, Phyllonomaceae.

22[3]: 193–292. (Rosales:) Grossulariaceae, Platanaceae, Crossosomataceae, Connaraceae, Calycanthaceae, Rosaceae (pars).

22[4]: 293–388. (Rosales:) Rosaceae (pars).

25[1]: 1–88. Geraniales: Geraniaceae, Oxalidaceae, Erythroxylaceae, Linaceae.

25[2]: 89–171. (Geraniales:) Tropaeolaceae, Balsaminaceae, Limnanthaceae, Koeberliniaceae, Zygophyllaceae, Malpighiaceae.

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